

# Cooperação Trilateral

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## Lessons Learned about the Trilateral Cooperation Project on Food and Nutritional Security (PSAL), 2011-2015<sup>1</sup>

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## Executive Summary

This report analyzes the lessons learned through the lived experience of the Trilateral Project of Food and Nutritional Security (PSAL), carried out from 2011-2015 through a collaboration between U.S. and Brazilian organizations working together in Mozambique with local partners. The PSAL project tested and adapted vegetable production, postharvest, and processing practices and technologies; developed infrastructure for research, extension and processing; trained dozens of Mozambican researchers, interns, interviewers and extension workers; and collected, organized and made systematic socioeconomic information publicly available regarding the horticultural value chain.

Trilateral cooperation (TC) is an innovative new model of development assistance and technical cooperation, and little documentation exists of how it works in practice. In this study, key questions were explored regarding three aspects of suggested best practices for TC: *collaboration and coordination; ownership and synergies; adaptive governance.*

Part of the project strategy was to experiment and learn about practical mechanisms and strategies for effective implementation of trilateral cooperation and to document its benefits, challenges, and the lessons learned during the process. Drawing on dozens of interviews, anonymous individual surveys, and discussions at the beginning and the end of the project, this report explores the principal challenges and gains from working in trilateral cooperation, the initial difficulties faced and how they were overcome.

The report concludes with recommendations for future trilateral cooperation projects:

- invest in communications and collaboration based in interdisciplinary trilateral teams;
- involve all levels of organizations as well as all actors involved in the whole value chain;
- address limitations, priorities and incentives in local institutions; and
- adopt innovative and adaptive governance strategies and mechanisms to address the evolution of complex trilateral interactions.

## **I. Introduction**

This report analyzes the lessons learned through the lived experience of the Trilateral Project of Food and Nutritional Security (PSAL), carried out from 2011 to 2015 through a collaboration between U.S. and Brazilian organizations working together in Mozambique with local partners. The goal of the PSAL project was to improve the human and institutional capacity of the Institute of Agricultural Research of Mozambique (IIAM) to conduct research and provide advice on horticultural value chains from inputs, production, marketing and processing, all the way to consumption.

Trilateral technical teams from the *Instituto de Investigação Agrária de Moçambique* (IIAM), *Empresa Brasileira de Pesquisa Agro-Pecuária* (EMBRAPA), University of Florida (UF) and Michigan State University (MSU) focused on three main areas: (1) socioeconomics, (2) production systems, and (3) postharvest and agro-processing technologies. The scope of the PSAL project included development of knowledge, best practices, and technologies that would contribute to increasing horticulture production and productivity in the Green Zones of Maputo and the neighboring Boane, Namaacha and Moamba districts. The PSAL project tested and adapted production, postharvest, and processing practices and technologies; developed infrastructure for research, extension and processing; trained dozens of Mozambican researchers, interns, interviewers and extension workers; and collected, organized and made systematic socioeconomic information publically available regarding the horticultural value chain.

Trilateral cooperation (TC) is an innovative new model of development assistance and technical cooperation, with little documentation of how it works in practice (Bhattacharya 2016; Fingermann 2015: 3). Part of the PSAL project strategy was to experiment and learn about practical mechanisms and strategies for effective implementation of trilateral cooperation and to document its benefits, philosophical and practical challenges, and the lessons learned during the process. With this goal in mind, this report explores the principal gains and challenges in trilateral cooperation, the initial difficulties faced and how they were overcome, and the reflections of dozens of participants in the project about their practical experience. It also addresses how the project affected the capacity and vision of its participants, as well as the potential for organizations involved to serve the communities of Mozambique. Based on these considerations the report articulates key lessons learned for future projects of trilateral cooperation.

## **II. Brief Background on Trilateral Cooperation**

Trilateral Cooperation (TC), a type of development cooperation involving three partners, has emerged in recent years as a new model of international development assistance that promises the benefits of collaboration, such as potential impact maximization, effective leverage of bilateral funds to boost common objectives, and adaptation of technical expertise and models developed in emerging economies to the development context in least developed nations, while still facing many challenges common to other forms of technical assistance (ECOSOC 2009: iv; Fordelone 2009). Most TC experiences to date consist of a traditional donor providing funds to support technical work by an emerging donor in a third country, or add-on components to existing bilateral projects.

Over the past few years, the U.S. and Brazil have been pioneers in developing more complex collaborative partnerships that build on complementary visions, knowledge and methodologies,

as well as shared budgeting of joint activities. This model of TC reflects the commitment of both countries to developing new forms of horizontal collaboration as Brazil graduates from its role as a bilateral recipient to a cooperation provider country (OECD 2013: 19). Throughout the project, ABC and USAID-Brazil worked closely with the PSAL executing organizations, UF and EMBRAPA, to learn from the experience and develop frameworks and adaptive strategies to improve the project's performance. The potential benefits of such TC collaboration include capacity-building at multiple levels in the host country, as well as mutual learning from exchanges, institutional strengthening, different approaches to development challenges, leveraging of resources and experiences, and greater impact in the host country based on synergies rather than competition (Langendorf and Müller 2011: 9).

Working with multiple trilateral partners to develop and apply a practical framework for effective implementation of trilateral cooperation presents new challenges, along with higher transaction costs that can cause harmful delays, frustration, and misunderstandings. Pioneering projects such as PSAL serve as a means to learn about obstacles to implementation, adapt procedures, consolidate relationships, and develop the capacity to expand and improve TC. This report contributes to fill the gap in literature that documents the lessons learned from the practice of TC.

In this report we assess the lessons learned from the PSAL project for TC: what worked and what didn't work? Through in-depth interviews with project participants at all levels, we will explore the following questions articulated by ABC in their Manual for South-South Technical Cooperation:

- Are there better ways to do things?
- What were the failings that occurred in the design, implementation and monitoring of the project?
- What should be avoided in future similar initiatives?
- What should be retained and adapted to the context of similar initiatives?

The initial review of the literature on trilateral and south-south cooperation revealed relatively little empirical analysis of TC in practice, although discussions suggested best practices for the complex process of TC (Pantoja 2009). Three key sets of best practices for successful TC, derived from the literature and listed below, will be used as a framework to further explore key lessons learned for TC.

*Collaboration and coordination:* Strategies to promote leadership, communication among relevant partners, and harmonization of approaches

- Evaluate the impact of collaboration in project activities on increased **capacity and knowledge** of technicians, researchers and trainees in executing organizations in the three countries
- Analyze the evolution of the trilateral collaboration process and the **interpersonal relationships** among partners
- Assess the impact of collaboration in project activities on **institutional leaders and practices** of the organizations involved

*Ownership and synergies:* Strategies to promote ownership by participating individuals and organizations, especially those in the host country, and alignment with national priorities as well as other relevant ongoing programs

- Assess the potential impact on transformation of Mozambique's **agricultural system**

- Assess the **ownership** of partnership activities by Mozambican partners
- Evaluate the planning for human and operational resources on behalf of the Mozambican government to guarantee the **sustainability** of project results and the dissemination knowledge and techniques acquired

*Adaptive Governance:* Flexible project management to adjust to complex and changing conditions

- Analyze positive and negative aspects of the **governance** of trilateral cooperation in PSAL
- Capture **lessons learned** from the PSAL project experience to strengthen positive elements in other trilateral projects
- Provide **recommendations** for future trilateral cooperation projects

This synthesis report integrates the lessons learned over the course of the PSAL project, from its genesis through implementation and closure. Responses from interviews, surveys, and group discussions with dozens of project participants are summarized in relation to the main conceptual issues in TC practice, in order to assess and discuss the principal lessons learned in an accessible format.

### **III. Methods and Approach to Learning Lessons about Trilateral Cooperation**

The mandate to learn lessons about TC from the PSAL project was written into UF's initial contract with USAID-Brazil, and was explored in two stages, at the beginning and at the end of the project. Key ABC and USAID-Brazil personnel participated closely in the discussions of questions to be addressed and how to approach the study of lessons learned. A wider group of project participants later provided feedback on the overall approach, specific methods, and specific questions to be addressed. A majority of key project participants supported the combined methodology used, despite some differences of opinion.

The first stage of the lessons-learned analysis was an in-depth exploration of the project's genesis and initial stages, discussed in the next section of this report. Interviews were carried out in 2011 with two dozen key project participants from the three countries. Because of multiple unexpected bureaucratic hurdles that arose during the first phase of the project, the findings from these initial interviews were incorporated into a policy brief that helped the project managers to overcome these obstacles and successfully launch the project.

The second stage of analyzing lessons learned from the PSAL project came at the closure of the project in 2015. Despite initial problems and delays, the project had successfully carried out training and capacity-building activities, produced promising seed varieties, and developed practices and techniques to support horticultural production in Mozambique. How did the project participants themselves experience the project, its successes and limitations?

Several methods were adopted to address this question. These included a facilitated group discussion among key technical participants, as well as anonymous individual surveys, and direct interviews with project managers. The data from these surveys were systematically reviewed, summarized, and analyzed along with other interview and group discussions to produce this report and its recommendations.

## **IV. PSAL Trilateral Cooperation Program in Mozambique**

### **IV.1 Project Genesis**

The PSAL project began with a general agreement about the objectives and approach to cooperation as a transparent collaboration process, and a common interest in improving the conditions for sustainable development in Mozambique. The purpose of the agreement was for horizontal collaboration, not a donor-implementer relationship like some trilateral aid programs. Instead, funding was shared: the Brazilian government committed to provide up to 30% of the funds for the project.

An advantageous feature of the PSAL project was its foundation in pre-existing strong bilateral relationships, which are important to help collaborative projects form (Shrum et al. 2007). Even before the PSAL project officially began on December 31, 2010, a series of parallel bilateral activities were underway among the project partners, which intensified with the prospect of the PSAL. The Brazilian technical partner, EMBRAPA, already had an office in Maputo and was involved in ongoing projects in collaboration with IIAM and international agricultural development organizations, including the multilateral Platform for Agricultural Innovation in Mozambique; these efforts paved the way for the initial PSAL proposal. Through the long-term presence of MSU's office in Maputo, the UF-MSU team was able to build on strong pre-existing relationships with these agricultural development organizations and the Platform. UF's long-term collaborations with EMBRAPA in Brasilia also helped to cement relationships for the horticulture project, as did the fact that key U.S. participants were comfortable in Portuguese and had long experience in collaborative research in Brazil or Mozambique, or both.

A problem that emerged repeatedly in the initial stages of the PSAL project was related to the different procedures for approval of agreements, budgets and travel, as well as reporting systems required by the two collaborating organizations, USAID-Brazil and ABC, and by relevant participating organizations. These major differences came as a surprise to project participants as the trilateral project got off the ground. Initial stages of the PSAL thus constituted a typical collaborative project "birth drama" (Shrum et al. 2007: 25), complete with prolonged, complex negotiations among multiple diverse tri-national partner organizations involved in these "knowledge encounters" (Scoones et al. 2016: 8).

Despite difficulties in negotiating procedures, authority structures and budgets, throughout 2011 the project was able to move forward with collaborative planning on numerous fronts, especially where pre-existing collaborative networks already existed in relevant fields. After consultations carried out by video conferences, face-to-face meetings took place among American and Brazilian partners in Brazil and later with all partners, or selected sub-groups, in Mozambique as opportunities arose. The PSAL was able to advance in definition of technical cooperation structures and thematic integration, while addressing initial encumbrances to collaboration based on administrative procedures.

The first trilateral meetings among partners in the horticulture project led to the definition of thematic trilateral teams (production; socioeconomics; postharvest and processing) with designated leaders and representation by all the principal participating organizations. This decentralized structure was designed to improve coordination and reduce transaction costs, although it was difficult to implement without physically bringing together each team, which required travel that was not always approved by higher levels of the bureaucracy in participating organizations. The establishment of trilateral project teams was one of the most important factors in the success of the PSAL.

A meeting of Brazilian and U.S. partner organizations in Brasilia, in June 2011, clarified many of the procedural differences and established consensus on the need to develop broad cooperation instruments for formal signatures, linked to more detailed joint technical work plans to be developed in future planning meetings, with mechanisms to allow adjustments in view of the long delays since original planning meetings. In collaboration with others involved in trilateral cooperation in Mozambique, the PSAL team produced a policy brief detailing the procedural differences, and making recommendations for how to improve the trilateral process, listing eighteen specific policy recommendations (Schmink et al. 2011). This document provided input into a Strategic Framework for Trilateral Development Partnership published by ABC and USAID-Brazil in 2012, establishing a common approach that helped projects overcome these initial difficulties (ABC 2012; USAID 2012). Project managers were able to apply these lessons in the initial stages of subsequent new TC projects in Haiti and Honduras, adopting more strategic selection of project activities, using a more structured planning process based on ABC project document models, and moving towards more fluid and less detailed “umbrella” agreements that could allow for greater adaptive governance.

The complexity of the multiple partnerships in the PSAL trilateral collaboration, and the need to negotiate distinct procedures and arrangements, delayed the beginning of project activities for over a year, the first of many unexpected challenges that required important innovations and strategies, as project managers sought to balance flexibility and adaptability with compliance to required institutional procedures of different partner organizations. The ability to be flexible and adaptable, and the imperative of including all relevant actors in trilateral discussions, were important lessons learned early in the project that would be repeated throughout the evolution of activities.

## **IV.2 Objectives and Activities of the PSAL project**

The overarching goal of the PSAL trilateral program was to reduce poverty and hunger in Mozambique by improving agricultural productivity, food security, and human nutrition through the joint efforts of U.S., Brazilian, and Mozambican partners. More directly, activities were oriented towards strengthening the human and institutional capacity of IIAM to carry out research and training on a range of horticultural crops using a value-chain approach. Specific objectives included: developing and strengthening production systems leading to qualitative and quantitative increases in horticultural production; building capacity of a specialized technical team in the areas of horticultural extension and research; and generating a knowledge base on production, commercialization, postharvest and processing of horticultural crops in Mozambique. Direct beneficiaries of the project included IIAM researchers, extension workers in Maputo and Gaza, and family farmers in Maputo province, while indirect beneficiaries would be rural farmers in Moamba and Boane districts as well as farmers in the peri-urban farming sub-districts of Maputo city.

A concomitant goal was to develop a practical and comprehensive framework for effective implementation of trilateral cooperation, including documentation of the benefits, practical challenges, best practices, and lessons learned. The breadth of objectives articulated in the PSAL suggest that the project sought to catalyze change in Mozambican agriculture by strengthening local technical capacity, leadership, and networking – rather than simply delivering a development program (Kleinfeld 2015: 2). Activities focused on training and building capacity of agricultural researchers at IIAM, as well as students and interns from local universities; testing horticultural varieties and production practices; collecting socioeconomic data from producers in Maputo’s Green Zones and the surrounding districts supplying Maputo’s

markets; and establishing physical infrastructure for the agricultural experiment station at the research station of Umbeluzi and a postharvest/processing facility, both in Boane.

Our assessment of lessons learned from the project focuses on both the direct results of training, agricultural investigation, data collection and investments in improved research infrastructure, as well as the perspectives of project participants about the potential for these activities to generate indirect effects in the improvement of horticultural production to benefit farmers.

### **IV.3 Closing Reflections on the PSAL Experience**

The PSAL project officially closed on December 31, 2015 – five years after the beginning of a planned 2-year project that effectively began in mid-2012 after about 18 months of delays. A series of events took place November 16-20, 2015 to mark the end of the project, including a facilitated collective discussion by project participants from the three partner countries; field visits to project sites; and a public presentation of project results, including the public launching of a book summarizing the main findings of project participants across the three components (Haber et al. 2015). Not part of the original project plan, the book, *Horticultura em Moçambique*, was another example of the project's ability to be flexible and adopt new activities, finding ways to pool resources from different partner organizations in order to capture the project results in published form.

The collective group brainstorming reflection during the closing workshop of the project focused on: positive outcomes of the project; challenges; lessons learned; and future priorities. Participants first divided into smaller groups by each component of the project, then presented and discussed the various small-group results as a plenary. The lists of outcomes, challenges, and lessons learned generated by this exercise were subsequently incorporated into the individual survey questionnaires to assess their importance to the broader group of project participants at different levels.

Positive outcomes cited by participants were grouped into categories of communications/publications; capacity-building; institutional strengthening; broader impacts; and potential impacts in production. Challenges cited in the brainstorming session included: limitations of the target institution, IIAM; personal characteristics; challenges of trilateral cooperation; and dissemination of results. The discussion highlighted the institutional challenges for IIAM of absorbing new trilateral project activities and the large, short-term trilateral technical missions that carried them out; the interpersonal skills, interests, and incentives needed for effective participation in trilateral cooperation; and the difficulties of coordinating activities among multiple components and partner organizations in a timely fashion. Responses to the individual survey questionnaires (summarized below) elaborated on these positive and negative points in greater detail.

Participants cited lessons learned in planning and in managing trilateral cooperation, emphasizing the need to address the whole value chain, including extension of new practices and technology to producers, from the beginning of the project. Regarding trilateral cooperation, they mentioned the need for clear policies on co-authorship and resource distribution, and mechanisms for stronger coordination and integration. Participants also discussed the importance of inter-personal skills and relationships for collaboration among partners.

## **V. Reflections on the PSAL project by Project Participants**

In addition to the group brainstorming regarding the PSAL, individual surveys were designed to collect input from as many of those involved directly or indirectly in the project as possible. A total of 179 people were identified, including key personnel from sponsoring organizations and ministry directors, dozens of researchers, interns and research assistants, as well as a few extension workers and partner farmers. The surveys were submitted by more than half of those contacted, for a total of 90 complete or partial responses. The responses to these surveys provided rich feedback on the experience of participating in the PSAL project that are summarized here. In accordance with the conceptual framework on trilateral cooperation, the presentation and discussion of results from the surveys focuses on key questions related to collaboration and coordination; ownership and synergies; and adaptive governance.

### **V.1 Collaboration and Coordination:**

Most of the PSAL project activities were focused on building the capacity of IIAM and the Ministry of Agriculture to develop and promote improved horticultural production. In this respect, rather than delivering a horticultural production program, the project sought to catalyze change in Mozambique by building local leadership, coalitions and networks that could constitute the local human capital required to follow through with the longer-term complex changes required to achieve broader impact (Kleinfeld 2015: 2; Langendorf and Müller 2011: 12-13). The project focused on building the capacity of the “core” agricultural research institutions in Mozambique, building on the 40 years of experience by EMBRAPA in Brazil as a model for the potential returns of such investment in research capacity.

In this lessons learned exercise we did not measure or evaluate the outcomes and impacts of the PSAL project. Instead, based on their experience in the project we asked participants to provide their assessments of the impacts of the project on technical capacity, institutional strengths, and the potential for these changes to lead to improved capacity to serve local farmers, and improved horticultural production and processing in Mozambique overall. Their responses illustrate the many pathways by which such investments in building capacity can potentially lead to longer-term impacts, as well as some of the impediments that could limit that impact.

What did the people interviewed hope to gain from the PSAL project? Most of them were drawn to the innovative nature of the collaboration: two-thirds of PSAL participants surveyed cited as their motivation the desire to gain experience working in multidisciplinary, international teams and to make contacts. Others hoped to learn new techniques, gain employment, or contribute to agricultural development in Mozambique. Half of the respondents were satisfied that their expectations for the project were met or succeeded, and another 44% said their expectations were partially met.

Three-quarters of respondents (47 total) reported receiving some kind of training (or, in the case of ministry directors, their staff received training). Researchers directly involved in the project primarily reported training in diverse aspects of horticultural production, both at IIAM facilities and also in Brazil, South Africa, and the U.S. Indirect participants, such as interviewers and data entry clerks, were primarily trained at IIAM in socioeconomic survey techniques.

What was the impact of this training on their capacity and knowledge? Nearly all those who responded (98%) believed that the training they received was useful, and three-quarters said

that it improved their technical capacity. A full 97% of indirect participants (primarily interviewers and data entry clerks) said their capacity was improved, compared to half (52%) of the researchers and technicians from the trilateral organizations directly involved in project implementation. In answer to a similar question, all of the 61 who responded affirmed that their training had led to professional growth, greater capacity, and/or development of competencies, knowledge and skills. The three most positive benefits cited of working trilaterally were networking (interpersonal, interinstitutional, interdisciplinary and internationally); increased visibility of IIAM; and synergies with other organizations and projects.

In their comments, respondents cited a long list of concrete examples of improved technical capacity, including production techniques and socioeconomic methods; adaptation of varieties and technologies to the Mozambican context; inter-personal relationships and how to work in diverse teams; and institutional strengthening. Examples cited of learning how to work in teams included learning how to exchange knowledge, and to interact in scientific discussions with people having distinct knowledge, as well as how to negotiate, plan and carry out activities together with diverse teams. Also cited were leadership skills acquired, and several respondents mentioned learning how to be creative in carrying out a project and getting things done with limited resources, taking responsibility, and completing activities in “real time.” Seven of the non-Mozambican direct participants also cited increased professional capacity through greater experience/knowledge of developing countries, Portuguese-speaking Africa and Mozambique in particular, as well as knowledge of the Portuguese language, among other gains.

Some respondents also suggested a number of broader and longer-term impacts of technical training. Direct participants pointed out a number of ways their institution was strengthened: through official release of horticultural varieties adapted to Mozambique; visibility of the research in the media and throughout the value chain; links with the private sector; and replication of knowledge to technical staff, extension workers, and producers in various local associations. The five ministry directors who commented also cited potential broader impacts: reduction in use of highly-toxic agrochemicals; increased production; new varieties for food security; and the capacity to carry out internet research on agro-technical topics. One of them affirmed that “our institutional plans now incorporate topics linked to minimal processing, as a result of the knowledge acquired by technical staff in the project trainings.” Directors also commented on examples of professional growth of their technical staff: more interest in the quality of seedling nurseries; more pro-active planning for activities; and passing on knowledge of new techniques to many more producers. They also mentioned aspects of institutional strengthening of the Ministry of Agriculture: more visibility with producers; more technological packages to disseminate, which will increase production and productivity; and reinforcement of technical capacity. “The project guided an integrated vision of the horticultural value chain, based on locally-available materials and low-cost year-round production of horticultural crops,” commented one director.

In response to a separate question about institutional impacts of the project, 79% of direct participants affirmed that the project had an impact on their institution, including 100% of respondents from Mozambican organizations, IIAM and the ministry, followed by 80% of those representing the universities, and 75% of those representing Brazil’s EMBRAPA. Seventeen comments elaborated on specific ways that IIAM was strengthened: greater visibility as a horticultural research entity; improved infrastructure; and international recognition; eleven comments referred to specific production innovations and nine to the socioeconomic research and resulting data base on horticultural production around and in Maputo, among other impacts mentioned.

Participating institutions from Brazil and the U.S. also were seen as gaining visibility and international experience, among other institutional impacts. An ABC employee reported the project to be a great learning experience; among other realizations, the organization learned that its greatest strengths in TC were in technical cooperation, while contributions in equipment, infrastructure, and other products were weaker. One USAID employee commented that the project brought concrete examples of innovations, based on a very rich process of trial and error in which project managers had to exercise creativity, and that all levels of USAID – including USAID-Brazil; USAID-Lima contracting office; LAC Bureau, Food Security Bureau – were stimulated to “think outside the box” in order to respond to unexpected “questions in their inbox.”

The table below shows that survey respondents were fairly evenly divided in their selection of the most important positive impacts of the PSAL project, taken from the list generated by the trilateral project team members. The most important impacts among the 167 responses (which included multiple responses) were trainings given, new tested seed varieties, as well as the communication/publications of the project. Institutional strengthening of IIAM, and optimization of horticultural production techniques, were also important.

**In your opinion, what were the most important impacts of the project? Indicate all that apply:**

Capacity building (Trainings in Brazil, the U.S. and in Mozambique; Integration of local knowledge with information generated by the project; Improved capacity of project actors -- professional growth, learning, etc.)	19%
New varieties tested, and identification and selection of new varieties with the potential to make up a germplasm bank	18%
Communications/Publications (Book, extension folders, reports, policy briefs, AgroClimate.org, etc.)	17%
Institutional strengthening (Revitalization of area for extension station; Rehabilitation of building to establish postharvest and agro-processing unit; construction of support structures: greenhouse, pumphouse; water reservoir; meteorological station; new techniques implemented in data collection (collection by tablet, etc.)	16%
Optimization of production techniques (Determination of agro-ecological zones; seedling production; green fertilization; introduction of Santeno® and Irrigas® irrigation systems; diversification of horticulture: <i>mandioquinha, salsa, jiló</i> )	14%
Increased visibility of IIAM	10%
Increased credibility of producers to receive agricultural credit	5%
Other (please specify)	1%
None of the above	1%
Total	100% N=167

To understand better the specific impact of trilateral cooperation, survey respondents were asked to indicate up to three of the most positive and negative impacts of the trilateral cooperation in PSAL. Among the 118 responses to this question, the positive impacts selected most often were networking (interpersonal, inter-institutional, interdisciplinary and transnational cooperation); increased visibility of IIAM; synergies with other organizations and projects; and

recognition of trained local researchers. Other impacts cited suggested potential longer-term impacts: guidance for agricultural research; appropriation of project activities by IIAM; and strengthening of academic relationships among organizations, as well as enhanced visibility of participating organizations.

***In your opinion, what were the most positive impacts of the trilateral cooperation project? (Indicate up to three)***

Networking (interpersonal, inter-institutional, interdisciplinary and transnational cooperation)	20%
Increased visibility of IIAM	17%
Synergies with other organizations and projects	14%
Recognition of trained local researchers	13%
Guidance for agricultural research	10%
Appropriation of project activities by IIAM	10%
Strengthening of academic relationships among organizations	9%
Enhanced visibility of participating organizations	5%
Other (please specify)	2%
None of the above	0%
	100% N=118

The responses to these questions about the impact of the PSAL project on building capacity, knowledge, collaboration, leadership and institutional practice show that project participants who responded to the survey perceived important impacts on dozens of participants through trainings in Mozambique and overseas, leading to strengthened capacity to carry out collaborative research and to address needed improvements throughout the value chain. The results suggest that the PSAL project was successful in this regard, and that the impact on leaders and institutions contributed in specific ways to create the conditions for broader impact in horticultural production and food security in Mozambique.

## **V.2 Ownership and synergies**

Given the positive impacts cited in technical, professional and institutional capacity, how likely is it that these improvements would translate into longer-term impacts in Mozambican horticulture? Three questions asked participants to reflect on the potential broader impact of project activities on institutional capacity to serve local Mozambican communities, as well as on the strengthened potential for family-based horticultural production and rural industrialization (postharvest handling and processing of horticultural products). Of the 31 respondents who answered these questions, over 80% felt that the project had improved the potential to serve local communities and to strengthen family-based horticultural production. Some commented that this was based on the improved capacity for research, as well as contacts made with some producers and other actors at the experiment station. A few respondents commented that it was premature to predict broader impacts, and respondents were less optimistic about the potential to strengthen rural industrialization (60% were optimistic). Problems mentioned in their comments included delays, equipment still needed for the processing facility, and lack of planning for training programs on post-harvest processing.

One survey question asked: to what extent did the project promote ownership of the activities by the Mozambican partners, including the identification of long-term objectives and activities? Responses to this question were mixed. Four respondents affirmed that Mozambican partners completely or partially owned the project. One elaborated as follows:

The team that executed the activities was all from IIAM. In the periods between the international missions they carried out experiments, demonstrations, and trainings for researchers, extensionists, producers and political decision-makers. They established collaboration with other institutions to strengthen these actions (Feltrim, Syngenta, hortisempre from the Swiss cooperation, Sakata, TECAP, Agrifocus, Soluções Rurais, Casa de Caridade do Gaiato, and local governments of Namaacha, Boane, Manhica and the city of Maputo).

Four other respondents emphasized how hard the project participants had worked to promote ownership by Mozambican partners, and four others pointed out the specific capacities and skills Mozambican participants had developed. Five respondents did not believe that Mozambican partners had taken effective ownership of the project activities, especially in technology transfer, due to lack of technical personnel and resources, and due to the integration of the technology transfer component too late in the project.

These comments suggest that the PSAL project only partially succeeded in promoting ownership by Mozambican partners, which is also reflected in the responses to a question about the existence of technical-operational and budgetary planning to continue PSAL project activities after the project closure in December of 2015. Among the 15 responses to this question, only 3 (one Mozambican, one Brazilian, and one American) agreed that this planning existed, and 12 (80%) disagreed. Four people who commented on this question indicated that planning had begun or existed in part, and three expressed doubts about future continuity. Although the PSAL project was able to have a significant impact in increasing technical and leadership capacity in Mozambique during its three-year active period, the incomplete process of technology transfer as well as limitations on the appropriation of project activities by the higher levels of local institutions raised doubts about the sustainability of the activities initiated by the project, in the absence of continued external support.

### **V.3 Adaptive Governance**

Management of trilateral cooperation is complex, involving multiple cooperating organizations from three countries, and requires flexibility and creativity in order to address obstacles such as the bureaucratic differences that hindered the initial stages of the PSAL project, described earlier. In order to learn about what specific management strategies were most effective in the PSAL trilateral project, the survey asked respondents to assess the technical management of the project, the division of technical and financial responsibilities, communications among partner organizations, involvement of relevant personnel in participating organizations, coordination mechanisms and timetables. The responses, summarized below, include perspectives of varying numbers of direct participants and ministry directors who responded to each question.

- The great majority of respondents evaluated the technical management of the project as excellent (30% of 27 project direct participants) or good (56% of direct participants and 75% of the four ministry directors who responded), and no one evaluated it as bad.
- Over 91% said that communications were open and consistent among the partner organizations (one comment referred to this as the “high point” of the project), and three-quarters indicated that there was a clear division of technical and financial roles and

responsibilities among partner organizations (IIAM, EMBRAPA, UF and MSU). A few comments affirmed that nevertheless there were some problems with communications, lack of follow-through with planning, lack of financial transparency, and financial dependency created by the project.

- A large majority (84%) of 19 respondents agreed that there was a coordinating committee that represented key decision makers across the three countries. When asked to explain the role of this coordination committee, three responses mentioned planning, three identified the group as non-formalized, and one commented that the majority of key decisions were made by consensus across all participants. Three comments mentioned that the committee's functioning was hurt by the lack of key personnel based in Mozambique during the later phases of the project.
- A large majority (83%) of 30 respondents said the project involved relevant personnel at all levels of participating organizations, but this varied by institution. Whereas 90% of participants from EMBRAPA agreed about inclusion of relevant personnel, only half of those from Mozambican organizations and half from universities agreed. Of particular concern in the comments was the lack of involvement of higher levels of the ministry personnel.
- Seventy-four percent of 23 respondents agreed that there was a timetable for planning meetings, formal agreements, reports, events and evaluations, and 26% disagreed. In their comments, three people mentioned the annual planning process by project component, but four complained that this process was limited or plans were not followed.

Despite these overall positive assessments of project management, nine respondents also articulated multiple concrete examples of less positive impacts of the PSAL trilateral cooperation project, indicating areas for greater attention in trilateral cooperation.

- 17 of their comments suggested areas that still need improvement in terms of alignment of objectives, coordination, and financial management among multiple organizations in three countries.
- Lack of effective integration between research and extension, lack of extension to farmers, and the short duration of the project, were mentioned 9 times as negative elements of the PSAL project.
- 4 suggestions pointed to problems with overseas financial management, the high cost of infrastructure, and the creation of financial dependency.
- 3 comments complained about lack of dissemination of results.
- The lack of opportunities for graduate study by Mozambicans was mentioned 3 times
- Frustration with the limited outcome of some international missions was mentioned twice.

These responses show that the PSAL project had an important impact through trainings in Mozambique and overseas, strengthening the capacity of participants from the three countries involved to carry out collaborative research and to work together throughout the value chain. Participants valued both the specific technical skills they gained, and the opportunity to learn through the practice of collaborating in diverse teams. As a practical example of trilateral cooperation, the PSAL project developed successful mechanisms for technical management, division of labor in project components, coordination, and communications (conference calls and annual planning by component), although improvements were still needed. The impact of the project on leaders and institutions contributed in specific ways to create the conditions for

broader impact in horticultural production and food security in Mozambique, although the incomplete process of technology transfer as well as limitations on the appropriation of project activities by the higher levels of local institutions raised doubts among participants about the future sustainability of the activities initiated by the project, given the lack of follow-through planning and the continued dependency on external funds.

## **VI. Lessons Learned for Trilateral Cooperation**

In addition to these insights about collaboration, cooperation, ownership and synergies, we also sought to learn in more detail about the governance of trilateral cooperation itself through the facilitated discussions among project participants at the closing sessions of the project, and the individual surveys. Since the survey questions were optional, in some cases only a small number of respondents answered and commented on each question, but their responses were remarkably thoughtful and illustrate the diverse ways that project participants in this pioneering trilateral project see the future potential for this modality of cooperation.

We asked survey participants to select up to 4 major challenges to trilateral cooperation, using as a point of departure the list of challenges that was identified by project team members in the closing meetings; 20 people responded, generating 129 responses shown in the table below. The four greatest challenges to trilateral cooperation they cited were all related to the capacity of IIAM researchers to absorb and execute project activities:

- The small research team at IIAM subject to many demands and expectations (16%).
- The lack of motivation, commitment and/or permanence of people involved in the project (13%).
- The lack of support and institutional involvement by IIAM department heads (10%); and
- The shortage of IIAM technical staff in specific areas (9%).

Other challenges mentioned included the need for greater internal coordination and integration and for more effective participation (7% each); problems with delays and timing, with integration among project components (5% each) and other specific aspects of trilateral cooperation shown below. Twelve respondents answered a question about the overall project, and how things might have been done better, giving over two dozen suggestions to improve communications, coordination, planning, and administration.

***In your opinion, what were the main challenges to trilateral cooperation? (Indicate up to four)***

Small research team at IIAM subject to many demands and expectations	16%
Lack of motivation commitment and/or permanence of people involved in the project	13%
Lack of support and institutional involvements by IIAM department heads	10%
Shortage of IIAM technical staff in specific areas	9%
Need for greater internal coordination and integration among teams	7%
More effective participation in planning, execution, and decision-making	7%
Delays in execution of activities/"Timing" of executing and financing institutions	5%
Lack of functioning technical and coordinating committees	5%
Little integration among project components	5%
Lack of institutionalization of the trilateral (two bilateral agreements that formed a third)	5%
Lack of ability to work facing challenges, with flexibility, ( <i>jogo de cintura</i> ), openness and innovation	4%
Little value placed on project successes	4%
Lack of balance among the three countries in participation and execution of activities	4%
Dificuldades na captura e análise dos dados coletados para futura disseminação	3%
Underestimation of costs of infrastructure and services	2%
Other (please specify)	1%
None of the above	0%
Lack of skills to work in groups diverse in discipline, culture, and technical field	0%
	100% N=129

The need for incentives to foster greater participation by IIAM staff, a challenge identified in the previous question, was mentioned in four responses. As one respondent expressed it: "There should be a mechanism to help colleagues [from Mozambique] so they have the possibility of resources to make their involvement in the project a priority. Possibly, existing responsibilities at IIAM took priority over this project, making full engagement less possible."

Three comments highlighted the importance of including extensionists, producers, and technology transfer as integral parts of the project from the beginning, as a means to long-term sustainability and impact. "From the beginning of the project the continuity of activities after the end of the project should be considered (sustainability); involve some people from partner organizations in the research process, on the one hand to witness results, but on the other hand, to facilitate the technology transfer process," said one respondent.

Twelve respondents provided 15 suggestions for what should be maintained or adapted from the PSAL experience for similar future initiatives.

- 7 of the comments suggested maintaining the technical division of labor into trinational teams, but ideally with a greater presence of international partners in the host country.
- 5 focused on maintaining good dialogue and communications, improving the contributions by the local team, and reducing the time between planning and implementation that plagued the initial stages of the PSAL project.

- 4 comments suggested maintaining the technical infrastructure, the technical openness, and the documentation of actions undertaken.

Another question asked what should be avoided in future similar initiatives, and 10 people responded with nearly two-dozen specific suggestions.

- 8 comments suggested avoiding planning without the involvement and commitment of all partners, including local producers.
- 5 comments suggested more decentralized and transparent administrative and financial mechanisms.
- 5 commented on ways to make the trilateral technical teams work better, such as avoiding large short-term international missions.
- 3 suggested avoiding delays and timing problems, and
- 2 commented on the need to select participants with the right profile for trilateral cooperation, and to keep them connected.

Finally, 22 respondents responded to our question asking what were the most important lessons learned for trilateral cooperation in the PSAL survey, based on the list of lessons generated by the facilitated discussion among project participants. The most important lessons they selected were the need to integrate technology transfer (13%), work with producers and extensionists from the beginning of the project (12%), and address the whole value chain (9%). They also cited the need to create realistic expectations among project partners and beneficiaries (12%). Other suggestions had to do with management:

- Establish technical coordinating committees.
- Clarify policies on division of resources among donor and recipient organizations.
- Improve integration among organizations and internal project components.
- Establish adaptive administrative/financial management.
- Decentralize responsibilities for project execution, avoiding imposition of activities by executing organizations.
- Promote interpersonal relations among participants.
- Improve the balance in the number of persons coming on missions from the U.S. and Brazil in relation to the number of people available from IIAM.

The questions that probed the lessons learned by PSAL project participants revealed several important lessons, summarized below and discussed in more detail in the following section.

- TC projects need to realistically address the limitations of host country organizations such as IIAM to absorb large international projects, and what incentives are available to support their continued involvement and appropriation of activities for the future.
- TC projects seeking to have a broad impact on development must more effectively integrate all actors across the value chain (researchers, extensionists, producers, the private sector and consumers) from the beginning of the project.
- TC projects need to have greater involvement across all partners, especially local partners, in all phases of planning, implementation, and evaluation. In part because of a top-down beginning, and because of timing differences in the bureaucratic procedures of the U.S. and Brazil, some key Mozambican partners were not fully engaged at the outset of the project.
- Effective communication, coordination, and adaptive governance were essential to successfully implement TC in the PSAL project through trilateral technical teams divided by project component. Despite overall very positive assessment of these coordinating

functions in the PSAL project, outcomes were uneven across different project components at different times, and there were still many ways to improve.

## **VII. Discussion and Key Recommendations for Trilateral Cooperation**

This exploration of lessons learned from the PSAL Trilateral Cooperation project has revealed a number of useful insights and recommendations that will be summarized here in relation to each of the key questions raised about TC.

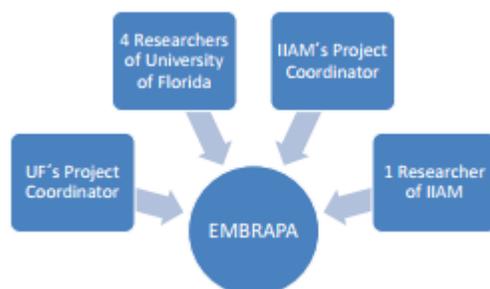
### ***1. Collaboration and coordination:***

- What is the potential impact of collaboration in project activities on increased **capacity and knowledge** of technicians, researchers and trainees in executing organizations in the three countries?
- How did the trilateral collaboration process evolve and what were the **interpersonal relationships** among partners?
- What is the potential impact of collaboration in project activities on **institutional leaders and practices** of the organizations involved?

**Capacity; knowledge; leadership; institutional change:** Respondents to our project surveys clearly indicated that the project increased their technical knowledge, and strengthened their work capacity related to many different aspects of horticultural production. In their view, the project strengthened the visibility and potential of the core agricultural researchers in Mozambique to address horticultural production in Maputo and surrounding districts, and although limited, to some degree this improved capacity was translated into direct impact on research and extension practices at IIAM and the Ministry of Agriculture. The project also reinforced bilateral relationships and enhanced synergies with other organizations and projects.

**Interpersonal relationships:** After overcoming initial difficulties and delays, the trilateral cooperation process started quickly and progressed well based on the division of labor into trilateral project component teams. This operational structure, built on a similar pre-existing structure at EMBRAPA, was a key element of project success, although each component had different dynamics over time. EMBRAPA researchers were often the key link in these relationships, having prior experience working with IIAM and UF, as shown in the following figure taken from Fingermann (2015). MSU's over two decades of collaboration with IIAM also contributed, especially in the socio-economics component. Cultural affinities and pre-existing interpersonal and professional relationships among key project personnel were very important in anchoring the project and helping it to survive the initial 18-month period of bureaucratic difficulties, and helped to moderate project "knowledge battlegrounds" (Long 2001, cited in Fingermann 2015: 9). An EMBRAPA report on the project referred to the "productive synergy among partners" (2014: 105).

### PSAL Professional Network



Source: Fingermann 2015: 9

In addition to technical learning, project participants in all three countries valued the professional networking and learning involved in their participation in interdisciplinary, multinational, and multi-cultural teams – a unique opportunity provided by TC. Partnerships and trustful relationships may be just as important as the actual development results and impacts (Piefer 2014: 26). Participants mentioned the importance of learning interpersonal skills and cultural sensitivity as part of being an effective collaborator in a TC project. Efforts to build a community among project participants – such as group meals and collective planning meetings – helped to cement interpersonal relationships which, despite the inevitable tensions, were remarkably harmonious throughout. It seemed clear from their behavior at project events that participants enjoyed being a part of the project (Fingermann 2015: 9). These findings contribute to the growing consensus that the benefits of TC (additional financial and technical support; knowledge sharing; and building development cooperation management capacities) outweigh the disadvantages (high transaction costs) (OECD 2013: 11; 23).

➔ **Recommendation 1: Continued investments in effective communication, coordination, and integration are essential to successful TC.** The structuring of trilateral technical teams for each project component was an important innovation of the PSAL project that helped to create conditions for a more balanced, horizontal collaborative process, although with important variations over time among different components. Participants in the project articulated many concrete benefits and learning that they gained through collaboration, training, capacity-building, networking, and working in diverse TC teams. These benefits should be recognized as part of the important potential return on the investment in managing transaction costs associated with TC.

➔ **Recommendation 2: TC projects need to realistically address the limitations of host country organizations to absorb large international projects, and the incentives available to support their continued involvement and appropriation of activities for the future.** In the absence of institutional financial incentives and priorities, it may be difficult or unattractive for participants to devote time and energy to a project, and to continue activities after partners have withdrawn. Payment of salary complements, a common practice by international projects where government salaries are low, nonetheless is controversial. The perception of “horizontal” equality of collaboration may be undermined by the imbalance in salaries compared to U.S. and Brazilian partners, but the imposition of northern salary supplement practices may create external dependency instead of leading to pressure for higher public salaries overall (Fingermann 2015: 10).

## **2. Ownership and synergies:**

- What is the potential impact on transformation of Mozambique's **agricultural system**?
- To what extent did Mozambican partners take **ownership** of project activities?
- To what extent did planning for human and operational resources by Mozambican partners guarantee the **sustainability** of project results and the dissemination knowledge and techniques acquired?

**Potential broader impacts:** The increased base of technical and collaborative skills and experiences produced by the PSAL project contributed to improving the capacity of participating researchers and their institutions to serve the needs of the Mozambican agricultural system through increased knowledge and visibility, availability of new validated varieties, practices and technologies, and the infrastructure needed to disseminate these advances.

**Ownership:** Promoting a horizontal form of collaboration, and the ownership of project goals and activities by host country partners, were both shared values of the U.S.-Brazil trilateral partnership. These goals were partially achieved. In some cases Mozambican technicians took charge and worked effectively to build a broad set of partnerships and to disseminate the production-oriented activities of the project, even in the absence of the international partners. Mozambican appropriation of the postharvest, agroprocessing and technology transfer aspects of the project was less successful, however. Strategies to promote greater ownership are needed to improve TC (OECD 2013: 24; Piefer 2014: 26).

**Sustainability:** The limitations on the appropriation of project activities by local institutions raised doubts about the sustainability of activities established under the PSAL project, since operational and financial planning for the continuity of project activities was still lacking. Despite clear successes in the functioning of trilateral project teams, and the focus on building local capacity, relative weaknesses in the participation by Mozambican participants contributed to limitations in the Mozambican appropriation of the project, and led to uncertainties about the future. Chichava and Fingermann (2015: 7) commented that credit and markets would continue to be a problem for farmers, and continued research in vegetable production by IIAM staff would depend on future resources from the Ministry of Agriculture.

➡ **Recommendation 3:** *TC projects need to involve all partners, especially those in the host country, from the first stages of planning, implementation, and evaluation.* Effective involvement of all key personnel from each relevant department of participating organizations from three countries is a worthy and important goal, but it is often difficult to align so many agendas, and to maintain engagement and continuity over time. Especially in hierarchical organizations and social settings, support from higher levels of authority provides key support for the continuation of project activities as an institutional priority.

➡ **Recommendation 4:** *TC projects seeking to have a broader impact on development must integrate all actors across the value chain (researchers, extensionists, producers, private sector and consumers) from the beginning of the project.* Specific

recommendations in this regard were articulated in the 2011 policy brief, and still need to be addressed in future projects.

### **3. Adaptive Governance:**

- What were the positive and negative aspects of the **governance** of trilateral cooperation in PSAL?
- What **lessons learned** from the PSAL project experience could strengthen positive elements in other trilateral projects?
- What **recommendations** can be suggested for future trilateral cooperation projects?

**Governance:** Given the complexity of involving multiple actors in three countries, it is a given that TC entails high transaction costs. Do these costs outweigh the benefits? The great majority of participants in the PSAL project evaluated positively the technical management, communications, coordination, planning timetable, and involvement of key personnel, although many specific improvements were suggested as ways to further improve the collaboration process. Several people mentioned the importance of having resident communications/coordination managers on site. Cooperation instruments developed for use in bilateral projects also need to be adapted to the specific conditions of trilateral cooperation, including more flexible and less detailed project documents (OECD 2013: 24). Openness for learning and adaptation are needed in TC (Piefer 2014: 27).

➔ **Recommendation 5: TC requires flexibility, creativity, openness and innovation in order to adapt to expected and unexpected obstacles, capitalize on synergies and opportunities, and support and disseminate learning across disciplinary, cultural, and national boundaries for common goals.** TC projects should be managed adaptively, expecting changes and taking advantage of new opportunities that arise. Tools and instruments developed for bilateral projects need to be adapted for the different circumstances of TC. The capacity to effectively promote collaboration, negotiate cultural and disciplinary differences, exercise empathy, and respect different views is an important qualification for TC project managers.

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