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Acceso a Mercados y Alivio a la Pobreza
Market Access and Poverty Alleviation

FINAL REPORT

MARKET ACCESS AND POVERTY ALLEVIATION (MAPA)

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Economic Opportunities Office

Jorge Calvo, CTO

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ACKNOWLEDGEMENTS

This is the most difficult section of this report to write. It is impossible to highlight everyone who deserves recognition without making the section too long. So, knowing I must certainly offend people who do not deserve to be offended because they have done really good work, let me say to everyone who has worked to make MAPA a success: thank you and a hearty pat on the back for a job very well done. There is an annex with the names of all of these people whom I personally consider to have been significant contributors.

That said, I must specifically tip my hat certain individuals. Jorge Calvo of USAID and Wálter Núñez, vice minister of agriculture and later minister, together were key to designing the concepts of SIBTA and MAPA. Jorge worked tirelessly for years to make MAPA and SIBTA realities and has been absolutely essential, as CTO, to making MAPA a success. Unfortunately, I don't think there will ever be anyone in USAID who will fully grasp how much the Mission owes to Jorge for MAPA's success and the success of SIBTA. Though he could not have done the project alone, the project could not have happened or been successful without him.

USAID Director Liliana Ayalde provided unwavering support. I do not mention her because she was the "boss," but rather because among USAID directors, there is none better. We were beneficiaries of her superior leadership and consistent support.

Willy Soria, President of FDTA-Valles and Edgar Guardia, executive director have provided integrity, commitment, vision, and good management. They created the conditions that made it possible for MAPA and FDTA-Valles to function as one entity instead of as a project and a counterpart organization.

MAPA depended on the technical capacity of a superior team. Deputy Chief of Party Marcos Moreno, in particular, brought an understanding of development, a business mentality, and enthusiasm to the team. From his mind sprang the seeds of many of our programs. In particular, the very successful onion and sweet onion programs of the Valles, and the coffee program of Yungas, were first his ideas. In a similar fashion, Enrique Rivas was the resuscitator of the tea industry, and the one who designed our innovative use of businesses to leverage our development programs.

When the MAPA contract was negotiated with USAID, Jim Dunlap, the contracts officer, asked me: "Does this budget give you everything you need?" I said "No." He asked what else I needed. I told him I wanted home office project administrator. He said "Okay" and added the position. The work of a chief of party (COP) can be divided into two categories: project administration and technical implementation. COPs are selected largely because of their technical qualifications, but often end up spending a preponderance of their time on administrative tasks. MAPA has had three project administrators: Victoria Taugner, Sallie Lacy, and Nancy Manson. Sallie was here the longest, but

they have all been fabulous. They have made it possible for me to maximize the time I could spend on the technical implementation of the project while being assured that the administrative management of the project was being advanced appropriately. They would make me aware of administrative issues requiring my attention, but they took care of all the rest. I get the credit for being the COP of a successful project, but in reality, they were doing half of my job. I hope that any contract officer who reads this will take note. Given the positive economic impact of MAPA, in my estimation, this decision was probably one of the most cost effective decisions Jim Dunlap ever made as a contracts officer, and I thank him.

Finally, I recognize one of the best consultants Chemonics has ever worked with, Earl Guise, who was key to the success of our oregano program. Earl passed away from a heart attack while on a MAPA assignment. The attack at was most certainly caused or aggravated by the high altitude and harsh working environment. His dedication was such that if he had known he would die here at some point while working with us, I believe he would have come anyway. At one point, he said, "I wish I had another 20 years to work here on oregano." If, when life is over, the measure of one's success is how much you benefited your fellow man, Earl left this life a very successful man.

Change brings risk. For the poor, those risks can have serious implications. I wish to acknowledge the more than 45,000 farm families that had the courage to follow our advice that the changes we proposed would benefit them. We provided the assistance, but it was their faith and their work that led to the successes herein reported. I wish more of the same for them in the future.

ABOUT THIS REPORT

This is the final report of the Market Access and Poverty Alleviation (MAPA) project, funded by USAID/Bolivia, implemented by Chemonics International Inc. between October 2000 and December 2005. The project worked using development assistance funds in the Valleys region that is the Eastern slope of the Andes from Cochabamba south to the Argentine border, and using alternative development funds in the Nor Yungas of La Paz, that is the traditional coca-growing region of Bolivia.

USAID's MAPA project has dramatically reduced poverty in Bolivia through agricultural development. This report will quantify that success and highlight how it resulted from elements including the project design, the management systems, and the operational context with the government of Bolivia and other donors.

The report serves three purposes: First, MAPA was a USAID-funded project. The report is a snapshot of how well the Bolivia USAID Mission has done against the development objectives it was targeting when it first undertook this activity. Second, it is the report card of Chemonics International Inc. regarding project performance compared to the original contract objectives. Finally, it is my report, as chief of party, and it includes my commentary and opinion. The first two purposes are mostly satisfied by the numbers. These result from statistical surveys, field-level cross-checking, and objective monitoring and evaluation systems used to track project performance. The commentary and opinion should not be attributed to either USAID or Chemonics. They are my "view from the trenches." If I accomplish my purpose, the reader will understand the dimension of the project success, gain a feeling for the human story that lies behind the numbers, and understand my opinion of what needs to be done from here on. The reader will see the project and its context through my eyes. Development is expensive and urgent. It behooves us to do it as well as we can. There are lessons for other development projects to be learned from MAPA. Consequently, in this report, when I have faced the dilemma of being diplomatic and not offending anyone, or being clear about the problems I have observed, I have opted for clarity.

Development is devilishly complicated and is usually really hard work. It often involves titanic clashes of interests, usually requires overcoming cascades of intermediate problems, and too often must be accomplished while dragging the manacles of bureaucratic chains and overcoming the resistance of entrenched interests and habits. It is, therefore, immensely gratifying to be able to report on a project that has so thoroughly succeeded in achieving its development objectives. The gratification is deeper than just reporting on objectives met. Because of our work, some of the poorest families of the Americas have dramatically increased their incomes learning tools to maintain and continue to increase their incomes. Children are going to school from families that, for generations, have not been educated. Homes are being improved. Money is available for health care and improved nutrition. In short, poverty has been reduced.

The MAPA project resulted from a collaboration between the government of the United States and the government of Bolivia. It required the cooperation and energy of many organizations, but particularly the cooperation between FD'TA-Valles (*Fundación para el Desarrollo Tecnológico Agropecuario de los Valles*) and the MAPA team. As a result of this combined effort, more than 45,000 rural families are directly better off, much better off, because of the MAPA project. A far larger number of Bolivians have indirectly benefited. More importantly, the benefits to these families result from changes that are permanent. Deeply rooted, perennial, income-generating capabilities have been planted as a result of this cooperation between the government of Bolivia and the United States, and they will continue to grow and bear fruit. The effect of the MAPA project will never be past-tense in Bolivia. Rather, people in Bolivia will continue to reap the MAPA harvest long into the future.

This report will detail the project's accomplishments, describe the approach used to achieve them, note factors that have been critical to success, comment on the overall development environment in which MAPA has worked, and remark on issues that will affect continued success. I will make some criticisms. They are not intended to offend, but are intended to highlight, from my viewpoint, problems that need to be solved in order to leverage and deepen the success that MAPA has accomplished.

EXECUTIVE SUMMARY

MAPA BY THE NUMBERS

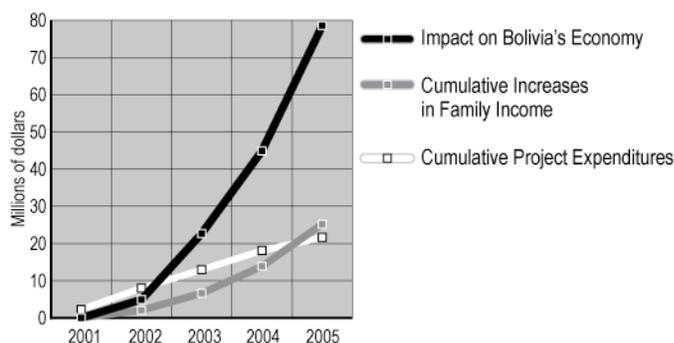
The MAPA project was created under a RAISE Task Order. The initial value of the task order was \$12,547,574, and subsequently amended to a final value \$21,600,373. The objectives of MAPA were: 1) to assist at least 10,000 commodity chain participants, 2) to increase their incomes by 5% on average, and 3) work in at least 10 commodity chains. Additionally, MAPA was asked to help establish and strengthen the *Fundación para el Desarrollo Tecnológico Agropecuario* (FDTA-Valles) in Bolivia's Valles regions. In 2002, the USAID alternative development strategic team asked MAPA to help develop licit alternatives for farmers in the Yungas region. The project started September 1, 2000 and concluded December 31, 2005.

Development is a complex process that necessarily must raise the incomes of the poor. That was MAPA's primary objective –to reduce poverty. MAPA was charged to work in Bolivia's agricultural sector and raise incomes by inducing environmentally, socially, and economically sustainable improvements. This report will demonstrate that USAID can resoundingly proclaim "mission accomplished" with regard to the specific objectives it set out with the MAPA project and "mission advanced" with regard to its long-range objectives to assist Bolivia climb the development ladder.

With most development projects, the work is done

Number of years	5
Number of direct beneficiaries:	
Contractual objective	10,000
Actual # for Valles	22,600
Actual # for Yungas	22,890
Total	45,490
Average Increase in Annual Income:	
Contractual objective	5%
Total household income	27%
Increase by commodity	103%
Number of commodities:	
Contractual objective	10
Actual # for Valles	10
Actual # for Yungas	4
Total	14
Estimated number of farm families listening to daily SIMA market information broadcasts	640,000
Contractual value of MAPA	\$21,600,373
Value of increased household income	\$24,852,734
Impact on economy of Bolivia	\$78,916,727

MAPA Performance



with the expectation that some day, long after the project has finished, the value of the increased income will exceed the money spent on the project. For instance, a new development project in Bolivia (not funded by USAID) projects impact similar to that originally programmed for MAPA. It expects that in five years at project end, increased income will be less than five percent of the project cost. This was certainly not the case with MAPA. Chart 1 shows three lines. One line shows the cumulative project expenditures over the course of the five project years. By project end, that total was over \$21 million. The second line shows the cumulative increases in income to farm families resulting from MAPA's work. By the end of MAPA, increases in family income had reached a cumulative value of over \$24 million.¹ This achievement, of raising incomes by more than the value of the project, during the life of a five-year project, is a rare accomplishment. For every USAID dollar spent on the project, \$1.15 of increased income was generated by project end. For every dollar of increased income that MAPA was contractually obligated to generate, it actually produced \$24.56 of increased income. Extrapolating the curve showing increased income, it may be that around the end of 2006, the increased income will have reached \$40 million, or almost double the cost of the MAPA project. The third line shows the multiplied impact of the increased income on the economy of Bolivia. By project end, that figure exceeded \$78 million. The end of MAPA does not signal an end to these benefits. These increases in income will continue to accumulate long into the future.

The MAPA project is a powerful validation of the USAID strategy outlined in the July 2004 *USAID Agricultural Strategy*. That strategy included “mobilizing technology to reduce poverty,” as well as “taking the long view” to promote sustainable agriculture. The strategy centered on “linking producers to markets,” including making market-related information available to growers. Regarding the latter objective, the MAPA project worked with FDTA-Valles to establish a country-wide market information system that broadcast wholesale prices nationwide, twice a day for three years and is now the official, national market information system. Surveys indicate that over 90 percent of farmers listen to those price reports. This wholesale market price information may be the most important factor to ensure that producers nationwide are “linked” to markets. Further, MAPA assistance to FDTA-Valles has made this organization a national model for efficiency, transparency and results-orientation, among FDTAs of the SIBTA system. FDTA-Valles has channeled two-four times more assistance funds to commodity chain participants than any of the other FDTAs. FDTA-Valles has been a protégé and partner of MAPA; the results shown below are theirs as well as MAPA's.

Indicators of Impact, Equity, and Efficiency

Tables 1 through 4 show how MAPA accomplishments were distributed across commodities for work done with FDTA-Valles. The first two tables indicate impact. The third is a measure of equity, in that it shows the commodities that have had the greatest benefit for the very poor. The fourth table shows a measure of efficiency.

Two economists were hired to calculate the “multipliers” for the crops and geographic zones where MAPA worked. These ranged between 1.77 and 5.14. The concept of a “multiplier” is that when someone earns an additional dollar,

¹ The dramatic difference between the contractual obligation and the achievement might lead some to conclude that the targets were set too low. That was not so. The contractual objective was set through extensive collaboration between project designers, including expert consultants and USAID Mission staff. These targets were reviewed and approved by several individuals with project development experience. By way of comparison, there is another agricultural development project just beginning, funded by a different donor, that will work for five years with a planned budget of \$18,000,000. Their contractual target for raising income is \$800,000 by project end. That amounts to 4.4 percent of budget. The MAPA contractual target amounted to 4.7 percent. Those two figures are closely compatible. They were arrived at independently by different donors and different development teams. The MAPA targets represented reasonable expectations by people with deep experience as to what is typically possible to accomplish in five years when starting from scratch. It simply turned out that MAPA was not typical.

s/he spends it, thereby positively benefiting other sectors of the economy. Those who receive that dollar, in turn, spend it. The multiplier effect is the extent that this circulation benefits the local economy. One dollar of additional income resulting from MAPA assistance had an impact on the local economy ranging from \$1.77 up to \$5.14. Typically, the more isolated and primitive the local economy, the higher the multiplier because the money continues to circulate locally. The economists calculated that the multiplied impact on the economy of Bolivia resulting from increases in income created by MAPA totaled \$78.9 million. Of that, \$47.6 million was in Valles and \$31.3 million was in Yungas. The great majority of the Yungas benefit was due to MAPA interventions in specialty coffee.

Table 1 shows the distribution of impact among the commodities in the Valles region. The result attributed to onions is due to three factors. It was the first commodity with which the project worked, it has the largest number of project beneficiaries throughout the Valles region compared to other commodities receiving MAPA assistance, and the per hectare increase in income experienced by beneficiaries was substantial.

Table 2 is another indicator of multiplied impact and it shows the average benefit per beneficiary by commodity. Hot peppers came in first place. This reflects the benefit from improved integrated pest management, which resulted in a substantially increased harvest; reduced cost resulting from lower chemical use; and the benefits of improved drying practices. It also shows that the benefits to Bolivia's economy were substantial, per beneficiary, for most of the project commodities. In this table, as well as the others, the fact that berries comes in last place is due to the fact that this is a new commodity, for which MAPA introduced everything from the original plant material to all the technologies for

production, post harvest, packaging and marketing. By the end of MAPA, we were just entering full commercial production. We expect this commodity to begin to show income results comparable to the other commodities. A rule of thumb is that a new agricultural industry, such as raspberries, typically takes about 15 years to become established. With the assistance of a catalyst organization, like MAPA, that timetable can be reduced. The new raspberry industry is progressing rapidly and should

Table 1 - Cumulative Impact of MAPA (Valles) on the Economy of Bolivia

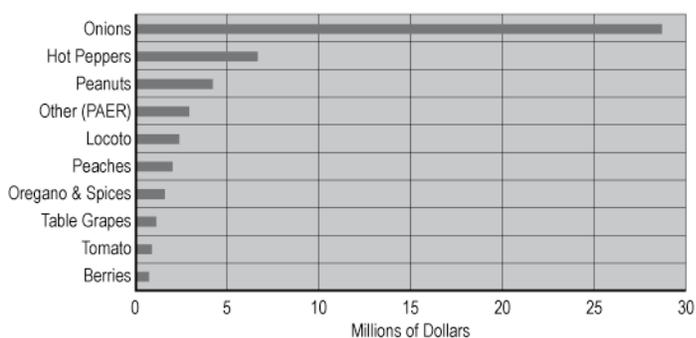


Table 2 - Multiplied Benefit per Beneficiary

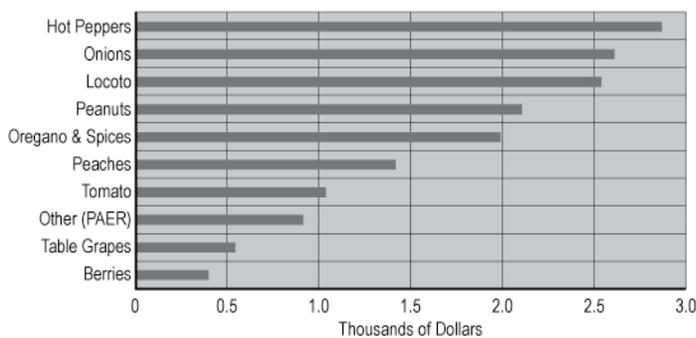
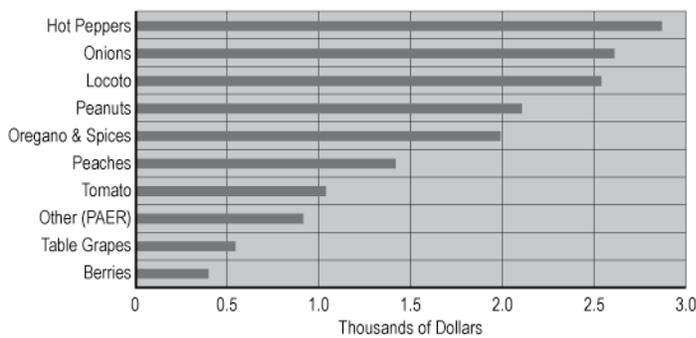


Table 2 - Multiplied Benefit per Beneficiary

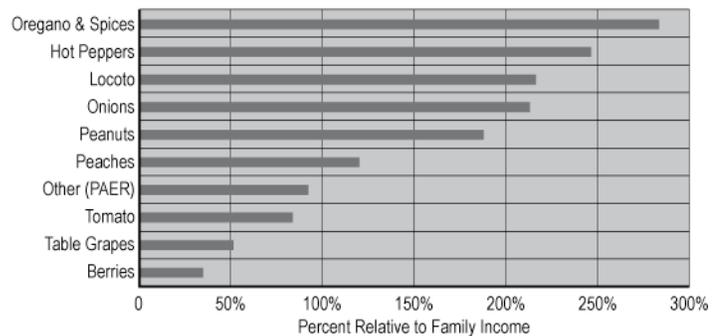


be well established much sooner than the norm.

Table 3 is a measure of equity. It shows the commodities that had the greatest impact relative to the income of the growers. The top commodity was oregano. We worked with oregano in one of Bolivia's, and South America's, poorest regions. The average oregano farmer only cultivates about 1,000 square meters (about ¼ acre), but roughly doubles his annual income as a result. Hot peppers were also grown in this economically distressed region and provide similar large benefit for these poorest-of-the-poor farmers.

Table 4 reflects efficiency. It shows the benefit to Bolivia's economy based on the investment made by MAPA in the different commodities. All the commodities except berries showed benefits that exceeded one dollar return to the economy per USAID dollar invested. Four commodities showed benefits that were more than \$10 return per dollar invested. We fully expect that in MAPA 2, the results for the lower performing commodities will also climb, as they mature in terms of the number of beneficiaries and the refinement of the interventions. The overall average annual increase in benefit to the economy, across all commodities, was \$323 per family. The overall average cost of projects was \$110 per family.

Table 3 - Multiplied Benefit Relative to Family Income



By way of comparison, considering only the impact measured at the end of completed projects, for each dollar spent, the MAPA–FDTA-Valles work generated \$1.03 of increased income. There are those who criticize FDTA-Valles as being too expensive. They are correct that FDTA-Valles and MAPA have spent more on operating costs than the other foundations. However, a balanced consideration compares cost to benefit. There are three other FDTAs operating in other regions of Bolivia. During this same time period, for completed projects, the average among the other three FDTAs was \$0.45 of increased income per \$1.00 spent on projects. For each \$1.00 of operating costs, FDTA-Valles generated \$2.93 of increased income, compared to \$0.48 for the other FDTAs. These figures show that the management systems worked out by MAPA and FDTA-Valles with USAID, and the project implementation strategies, have proven themselves to be efficient and effective at reducing poverty. The other FDTAs are improving, in part by harvesting lessons from the MAPA–FDTA-Valles experience, and although their performance has exceeded the original expectations for the MAPA project, the results highlight the exceptional achievements of FDTA-Valles–MAPA–USAID in comparison with the project's development peers in Bolivia.

In terms of the benefits for women, two commodities stand out: berries and oregano. In the case of berries, almost all field workers hired to work in berries are women, because of their superior ability to differentiate colors and their superior tactile control. Women are better at selecting the berries at the appropriate stage of ripeness and are able to harvest them without damage. Compared to most agricultural labor, working in raspberries is light work. As we are encouraging organic production, it also has a low health risk. In the case of oregano, almost all the families involved formerly grew potatoes on the land now used for organically grown oregano. Potato growing requires annual hand-turning of the soil for planting and again for harvest. It is heavy manual labor, and necessarily involves the women of the family. With oregano, one planting is good for about six years, and the production and harvest processes are light

work. The result is less and lighter work, no exposure to agricultural chemicals, and higher income. These factors have also freed up the time of children, protected their health, and provided the income to allow them to attend school.

Similarly dramatic results were obtained in the Yungas portion of the project. We worked for two years with 333 tea growers to re-start that industry. Results are just beginning to be felt, but we did generate over \$65,000 in direct income with a \$275,000 multiplied impact on the local economy. For the 195 growers in the Chimate region, the revived tea business constitutes virtually their entire cash income. In just two agricultural cycles, we developed the industry from zero output to 80 tons of processed tea. These benefits are growing quickly, and they should be a major economic engine in the region in the near future.

Our Yungas coffee program worked with 8,491 direct beneficiary farm families over the course of four years. It generated more than seven million dollars of increased income and a multiplied benefit to the local economy of more than \$31 million. Among the intangible benefits are the encouraging signs that people in this highly politicized and conflictive environment are more linked to the national economy. They feel more of a stake in the formal economy and more willing to collaborate with the national government.

We had two additional efforts in Yungas. In Coroico we concentrated on tourism, with a particular emphasis on improving local physical and social infrastructure. There were significant improvements in social consciousness and responsibility. In the lower reaches of Yungas, entering the Alto Beni, we worked with organic banana production. This was only for the final months of the project and it was undertaken to help sustain the activity until the ARCo project began. Both these efforts are explained in the body of the report.

In summary, MAPA has been a great success. It has generated considerable momentum toward increasing competitiveness and farm incomes for key non-traditional agricultural commodities in Bolivia's western departments (comprised of Chuquisaca, Cochabamba, Tarija, and Santa Cruz). By the end of 2005, MAPA, in close collaboration with FDTA-Valles, had generated significant and sustainable results in the onion, tomato, *locoto* (hot pepper), *aji* (chili pepper), oregano, table grapes, peaches, berries, peanuts, and cut-flower commodity chains. In Yungas, similar results were achieved in specialty coffee and tea. These successes were founded on interventions that were:

- Low cost
- Based on proven, low-risk technologies
- Relatively easy to apply
- Economically, environmentally, and socially sustainable
- Widely applicable
- Provided high economic return

In short, MAPA developed and used "silver bullets," most commonly through post-harvest technologies. While this may sound easy, it is not. We showed that it is possible to help even the poorest farmers in the worst conditions to achieve significant increases in income. Bolivia is better off because we were here. We are proud of what we have done and we hope that USAID, the U.S. government, and U.S. taxpayers are as well.

In the report that follows, details will be provided as to how these dramatic results were achieved.

Organization of this Report

This report is comprised of six chapters, including this introduction. The second and third chapters describe the scope and impact of MAPA in the Valles and Yungas regions. The fourth chapter elaborates on the establishment, uses, and benefits of the USAID-sponsored Trust Fund in FDTA-Valles. The fifth chapter discusses the roles, challenges, and recommendations for SIBTA. The final chapter discusses some general development issues as they relate to MAPA and describe lessons learned that could serve other development projects.

CHAPTER 1

MAPA PROJECT OVERVIEW AND CONTEXT

The framework for creation of MAPA came from Intermediate Result 2 of the USAID/Bolivia Strategic Objective Agreement (SOAG).

- IR-2: Sustainable sub-sectors for specific agricultural products established in benefit of the poor.

And the sub IRs:

- Sub-IR1: Improved access to basic infrastructure and other factors of production.
- Sub-IR2: Improved access by agro-entrepreneurs to technology.
- Sub-IR3: Improved access to markets by agro-entrepreneurs.
- Sub-IR4: Improved policy and regulatory environment.

The MAPA project was created under a RAISE Task Order. The initial value of the task order was \$12,547,574, and subsequently amended to a final value \$21,600,373. The objectives of MAPA were: 1) to assist at least 10,000 commodity chain participants, 2) to increase their incomes by five percent on average, and 3) work in at least 10 commodity chains. Additionally, MAPA was asked to help establish and strengthen the *Fundación para el Desarrollo Tecnológico Agropecuario* (FDTA-Valles) in Bolivia's Valles regions. In 2002, the USAID alternative development strategic team asked MAPA to help develop licit alternatives for farmers in the Yungas region. The project started September 1, 2000 and concluded December 31, 2005.

The project has generated considerable momentum toward increasing competitiveness and farm incomes for key non-traditional agricultural commodities in Bolivia's western departments (comprised of Chuquisaca, Cochabamba, Tarija, and Santa Cruz).

About a year and a half into the project, the Mission added the North

MAPA KEY RESULTS

- Reached more than 45,000 families with targeted production and marketing activities, technical services, and training in key commodity chains.
- Assisted products show more than a 100% increase in income to farmers for that product compared to the previous year.
- Participant households show a 24% increase in net income.
- The Bolivia specialty coffee industry was established as an important player in world markets.
- The tea industry was established.
- The infrastructure and social basis for tourism development in the Coroico region was dramatically advanced.
- Overall impact (multiplier effect) of the project interventions exceeds \$78 million.
- FDTA-Valles attracted new financing from outside sources.

Yungas to the project. There, the project worked in specialty coffee and tourism, revived and re-established the tea industry, and in the last months of the project, assisted with organic banana production.

RURAL CONTEXT IN BOLIVIA

The areas of MAPA intervention are highly stressed environments, long on problems and short on options. About 45 percent of Bolivia's population, and a majority of the rural population, is involved in agriculture. Most of these people are poor; the average annual income of Bolivia's rural population is \$1,260. In the Valles region, there are pockets where this average dips to below an average of \$1.00 per day per family. Other than a few wine producers, it is safe to say that all farmers in the Valles region are poor. Most farms are small; the average size is only 2.5 hectares. What is more, they suffer the effects of "*minifundio*" whereby land has been divided into small dispersed pieces. While there are still large landholdings in the Amazon basin and lowland regions, in the Valles and the Yungas, the land holdings are almost universally small. A preponderance of rural residents speak Spanish as a second language to one of two Indian languages, Quechua and Aymara. Most farming is manual and systems are typically not sophisticated. Wholesale agricultural markets are rustic in terms of organization, packaging and quality standards, and transparency. Prices tend to be well below export market prices. Cold chain infrastructure is almost non-existent. Rural infrastructure is limited, though access to electricity is improving, in great measure thanks to USAID. Rural roads range from marginal to horrible, making transport costs high, although USAID has also supported a consistent and long-term plan to improve rural roads. Access to services such as health and agricultural extension are limited. Educational opportunities, at the primary level, are fairly widely available, but of marginal quality. Legal land titles are the exception. The most important legal, government, and financial systems are local and tend to be more closely linked to cooperatives, unions, associations, and the local community than they are to the national government systems. Corruption in public services, such as the police, courts, land titling, and customs, is very serious. Violations of property rights, human rights, free movement, and free trade are fairly common. The central government is ineffective in sanctioning politically active groups that routinely violate the law by carrying out road blockades. A great deal of the politically based antisocial behavior has its roots in Bolivia's history of shutting down the tin mines, and is manifest in an attitude that unions represent the people against the private sector and the government. It is widely accepted that the government should subsidize agriculture (and other economic activities) by providing free machinery, infrastructure, and land. The mindset of a high percentage of farmers is that they are not private entrepreneurs, but are members of a union, association, or cooperative. The tax system is distorted and creates barriers to development. It has been estimated that 70+ percent of the Bolivian economy is informal, meaning the government has a very small tax base from which to respond to the ceaseless demands for preferential treatment. At the lower end of Bolivian society, there is an affinity for socialism and communism, whereby progress is more thought of as process of taking than producing.

THE PHYSICAL AND SOCIAL CONTEXT

THE PHYSICAL CONTEXT

The Valles region is the main horticultural production zone of Bolivia. It lies on the eastern slope of the Andes mountains and runs from Cochabamba to the Argentine border to the south. It is generally comprised of North-South running valleys that range in elevation from 3,000 to 10,000 feet. It includes everything from humid, temperate cloud forests to sparsely vegetated, high-altitude deserts.

Infrastructure in the region is not highly developed. In the larger communities, electricity is generally available, but it is

not common in the countryside. For most rural residents, water comes from wells, springs, or rivers. Water management is a major constraint for agricultural development. Roads are mostly dirt and most are intermittently maintained. The generally poor condition of roads constrains the production of perishable commodities.

THE SOCIAL CONTEXT

Land tenure is a serious problem. *Minifundios* predominate, meaning that small landholdings are divided from generation to generation making farm sizes small—usually three hectares or less—and spread among tiny, often widely separated parcels. Legal titles are rarely held. In the Cochabamba valley, which is one of the more fertile and productive valleys, this fragmentation of land holdings results in about 40 percent of the arable land being taken up by roads, paths, fences, and ditches. A good land titling program and the right to sell small holdings legally would probably be the single most effective intervention leading to economic growth in this region.

Although at the national level Bolivia is a democracy, at the local level the land issue allows leaders to be authoritarian. This problem most affects areas of the country where the agrarian reform did not give title to individuals and where land is communally held. Community leaders determine the assignment of land assets. Therefore, access to land is used as a powerful extortion device. If an individual does not bend to the political leaders, he could lose his land. He must back the leader's political agenda and participate in social actions, often meaning road blockades, in order to keep his land. At the local level, the national government influence is usually weak while the influence of local leaders is strong. This effect reaches from rural areas into communities as well, even where land title is not the base of power. Some MAPA employees have been required to participate in road blockades under threat of having their homes burned out. Acts of extortion and violence by these local leaders are usually invisible to the Bolivian legal system. The national government is very reluctant to act against politically active grassroots organizations.

Bolivia's tax system constrains agricultural development. Small farmers, by law, do not pay taxes. Any legal business can only claim as deductible costs those for which s/he has a legal receipt (*factura*). A small farmer, by law, cannot give a legal receipt. Therefore, any business that purchases raw material from a small farmer cannot deduct the cost of that expense. This creates a significant barrier to agricultural growth. Any farmer that tries to become large enough to be a legal business has a 19 percent tax cost that his informal neighbors do not. This is an important reason why more than 70 percent of the Bolivian economy is informal. The government effort to remove small farmers from the tax system was intended to benefit them, but actually it perpetuates their poverty by creating an almost impenetrable barrier to the growth of small agricultural businesses.

THE APPROACH

The intent of USAID/Bolivia, with the MAPA project, was to work in agriculture in such a way as to have a major impact on raising incomes, thereby reducing poverty, by applying proven agricultural technologies that could be sustained in the future without perpetual project assistance. MAPA stands for "Market Access and Poverty Alleviation." The word "alleviation" made for a better acronym than the word "reduction," but the fact is that MAPA was about reducing long-term structural problems that cause or perpetuate poverty, not alleviating short-term poverty-provoked survival crises.

Bolivia has a creative and effective answer to the dilemma of how to keep the immediate demands of poverty alleviation from diverting resources dedicated to the longer-term solutions needed for poverty reduction. That creative and effective answer is called SIBTA.

The following tables provide details on how the MAPA project, over five years, helped families raise their incomes. The last column shows the multiplied impact on the economy of Bolivia. As noted earlier, they show that the more than \$24 million in increased income exceeded the contract value of MAPA, which was \$21.4 million. The multiplied effect of that increased income on the economy of Bolivia exceeded \$78 million.

**MAPA VALLES
IMPACT ON THE ECONOMY**

	Year	# Benefited Households (cumulative)	Economic Multiplier	Average Income Increase per Family	Increased Income for all Families	Multiplied Impact on Bolivian Economy
Onions & Onion Seeds						
	2002	1,110	2.54	\$289	\$321,316	\$816,142
	2003	5,650	2.54	\$303	\$1,713,870	\$4,353,231
	2004	8,098	2.54	\$581	\$4,706,960	\$11,955,678
	2005	10,823	2.54	\$404	\$4,373,678	\$11,109,142
Hot peppers (<i>Locoto</i>)						
	2002	273	3.33	\$289	\$79,026	\$263,158
	2003	400	3.33	\$374	\$149,674	\$498,415
	2004	612	3.33	\$318	\$194,368	\$647,246
	2005	752	3.33	\$201	\$151,243	\$503,639
Oregano and Spices						
	2002	127	5.14	\$73	\$9,323	\$47,919
	2003	400	5.14	\$106	\$42,243	\$217,126
	2004	512	5.14	\$151	\$77,184	\$396,727
	2005	643	5.14	\$190	\$121,954	\$626,843
Chili Peppers (<i>Ají</i>)						
	2002	600	3.33	\$289	\$173,684	\$578,368
	2003	1,650	3.33	\$300	\$494,785	\$1,647,634
	2004	2,045	3.33	\$318	\$649,289	\$2,162,132
	2005	2,371	3.33	\$301	\$713,662	\$2,376,495
Tomatoes						
	2002	-	-	-	-	\$0
	2003	300	2.43	\$169	\$50,847	\$123,559
	2004	315	2.43	\$185	\$58,273	\$141,603
	2005	697	2.43	\$263	\$182,973	\$444,625
Table Grapes						
	2002	-	-	-	-	\$0
	2003	1,089	1.77	\$46	\$49,694	\$87,958
	2004	2,010	1.77	\$200	\$402,000	\$711,540
	2005	1,801	1.77	\$57	\$102,049	\$180,627
Peanuts						
	2002	-	-	-	-	\$0
	2003	-	-	-	-	\$0
	2004	1,300	3.33	\$175	\$227,500	\$757,575

	2005	1,844	3.33	\$514	\$947,031	\$3,153,612
Peaches						
	2002	-	-			\$0
	2003	-	-			\$0
	2004	1,110	2.54	\$100	\$111,000	\$281,940
	2005	1,156	2.54	\$458	\$529,485	\$1,344,893
Berries						
	2002	-	-			\$0
	2003	80	2.71	\$89	\$7,093	\$19,221
	2004	84	2.71	\$63	\$5,250	\$14,228
	2005	211	2.71	\$80	\$16,948	\$45,930
Others (PAER)						
	2002	-	-			\$0
	2003	-	-			\$0
	2004	2,304	3.01	\$150	\$345,600	\$1,040,256
	2005	2,302	3.01	\$149	\$344,010	\$1,035,470
Totals		22,600			\$17,352,012	\$47,563,710

MAPA YUNGAS IMPACT ON THE ECONOMY

	Year	# of Benefited Households (cumulative)	Economic Multiplier	Average Income Increase per Family	Increased Income for all Families	Multiplied Impact on Bolivian Economy
Coffee						
	2002	2,315	4.18	\$223	\$515,985	\$2,156,817
	2003	5,197	4.18	\$507	\$2,634,926	\$11,013,989
	2004	6,349	4.18	\$194	\$1,231,370	\$5,147,125
*	2005	8,491	4.18	\$360	\$3,052,742	\$12,760,461
Tea (Caranavi)						
	2002	-	-	-	-	-
	2003	-	-	-	-	-
	2004	96	4.18	\$67	\$6,428	\$26,870
*	2005	138	4.18	\$82	\$11,360	\$47,483
Tea (Chimate)						
	2002	-	-	-	-	-
	2003	-	-	-	-	-
	2004	162	4.18	\$111	\$18,018	\$75,316
*	2005	195	4.18	\$153	\$29,894	\$124,955
Tourism Coroico						
	02-05	12,237				Cannot be calculated
Total		21,061			\$7,500,722	\$31,353,017

* Estimated values for 2005

COMBINED VALLES AND YUNGAS

	Year	# of Benefited Households (cumulative)	Economic Multiplier	Average Income Increase per Family	Increased Income for all Families	Multiplied Impact on Bolivian Economy
Valles		22,600			\$17,352,012	\$47,563,710
Yungas		21,061			\$7,500,722	\$31,353,017
Total		43,661			\$24,852,734	\$78,916,727

SIBTA

SIBTA stands for “Bolivian System of Agricultural Technology.” SIBTA dedicates public funds to the poverty reduction agenda –to be implemented by the private sector– and it protects those resources from the public venue that constantly demands poverty alleviation interventions. Of course, Bolivia must respond to poverty alleviation issues, but SIBTA allows the government to ensure that at least some resources are reserved and dedicated to stay the course for working on long-term poverty reduction.

As already noted, about 45 percent of Bolivia’s population is directly involved in agriculture. If you subtract those who work in a few industries (soybeans, large cattle ranches, and wineries),² virtually all the rest are poor. The development problem is that, over time, Bolivia has to produce more agricultural product volume –that is, of higher quality, that is more profitable to the farmer, and that has a lower price to the consumer– and it has to do it with a much smaller portion of its population. That may sound like a magic trick, but virtually every developed country has used exactly that formula to fuel its development engine.³ As agriculture becomes more efficient, productive, and profitable, more national resources, in terms of people and money, become available to develop the industry and service sectors of the economy. The hard truth is this: if Bolivia is to develop, then over time, most Bolivians who are now in agriculture have to get out of agriculture. They will get out because they can no longer compete and because there will be other, better opportunities for them to make a living. A project like MAPA is not supposed to help make all poor farmers a little better off. It is to help a critical mass of growers become a lot better off and thereby stimulate the economic powerhouse that agriculture can be. Unlike trickle-down theories of development benefits, our effort was to establish a solid base of sustainable economic growth among poor farmers that, in turn, creates a powerful economic “thermal” that creates an upward flow of benefits through the economic system.

Bolivia has had a difficult time helping farmers apply technologies and practices that could improve their agricultural incomes. For many years, IBTA (*Instituto Boliviano de Tecnología Agropecuaria*) was the Bolivian system for agricultural research and extension. IBTA researchers identified interesting agricultural research problems and did a great deal of good work, but the system did not result in widespread applications that reduced rural poverty. The international

² It is noteworthy that the successful soy industry grew out of earlier, creative assistance provided by USAID. It is a textbook case of how agricultural success becomes the basis of general economic development. The Santa Cruz area, where the soy industry is based, has become the business center of Bolivia in significant measure due to the power of this commodity.

³ The only exceptions are city-states, like Hong Kong and Singapore, that have used trade and services as the basis of their development, or the very rare country that builds development based on extraction. Botswana comes to mind. Oil-rich states might also be counted in this group, though I am not personally convinced that many of them are really achieving sustainable development. Other than these exceptions, sustainable national development throughout the world has been built on the foundation of agricultural development.

donor community recognized the problem and in collaboration with the GOB, designed SIBTA to replace IBTA.⁴

Key elements of the SIBTA design include:

- Reduce poverty by getting effective agricultural technologies into the hands of poor farmers.
- Use the effectiveness and efficiency of the private sector to link farmers to those technologies and to markets.
- Require farmers to pay a minimum amount in order to receive project assistance and thereby help control the distortions that can result from straight subsidies.

The design of SIBTA included the formation of four foundations that were authorized to receive public or private funds to develop and implement projects that contribute to poverty reduction. These private foundations represent a collaboration between the public and private sectors, with members of their boards of directors coming from each sector. The foundations develop projects (PITAs, *Proyectos de Innovación Tecnológica Agropecuaria*) that are typically implemented by contracting private firms that carry out the project for the benefit of an organized group of farmers.

SIBTA is a machine that produces poverty reduction. The public sector invests money that is managed by the FDTAs while using SIBTA rules, and it receives poverty reduction in return. The genius of SIBTA is that it protects public funds for poverty reduction by placing them in the four FDTAs. Once the public resources are in the machine, the internal systems and controls of the FDTA manage the resources and the process to produce the desired outcome – poverty reduction– without interference from the government. In this way, the resources dedicated to poverty reduction are protected from short-term crises and changing political needs. During the life of MAPA, Bolivia has six presidents and nine ministers of agriculture. One of the hardest tasks we faced was educating successive ministry officials that SIBTA was a way for them to buy poverty reduction. SIBTA was designed to preserve a long-range, government poverty-reduction strategy. The internal workings of the machine were designed with ministry help, but because the FDTAs are private, the ministry could not tinker with the apparatus while it was in operation.

⁴ The collaboration among bilateral government missions in Bolivia that resulted in SIBTA has been singular. The vision and dedication of two people in particular were responsible for keeping the design and implementation of SIBTA on track. One was Wálter Núñez, who was vice minister and later minister of agriculture. He brought a faith in the power of the private sector, the intellectual horsepower to see a solution, and the political weight to make it happen. The other was Jorge Calvo from USAID. Dr. Calvo worked for more than 12 years to guide the design and isolate the resources that have made SIBTA a success. He contributed a solid understanding and sensible approach regarding how agriculture can function to reduce poverty, what it takes to make agriculture be good business, and a tenacity to stay on course. His work was also very important, if not the primary element, for welding the multilateral cooperation that is so unique to the SIBTA effort. He can rightly be called the “lynchpin” that has kept SIBTA on track and effective.

CHAPTER 2

MAPA-VALLES

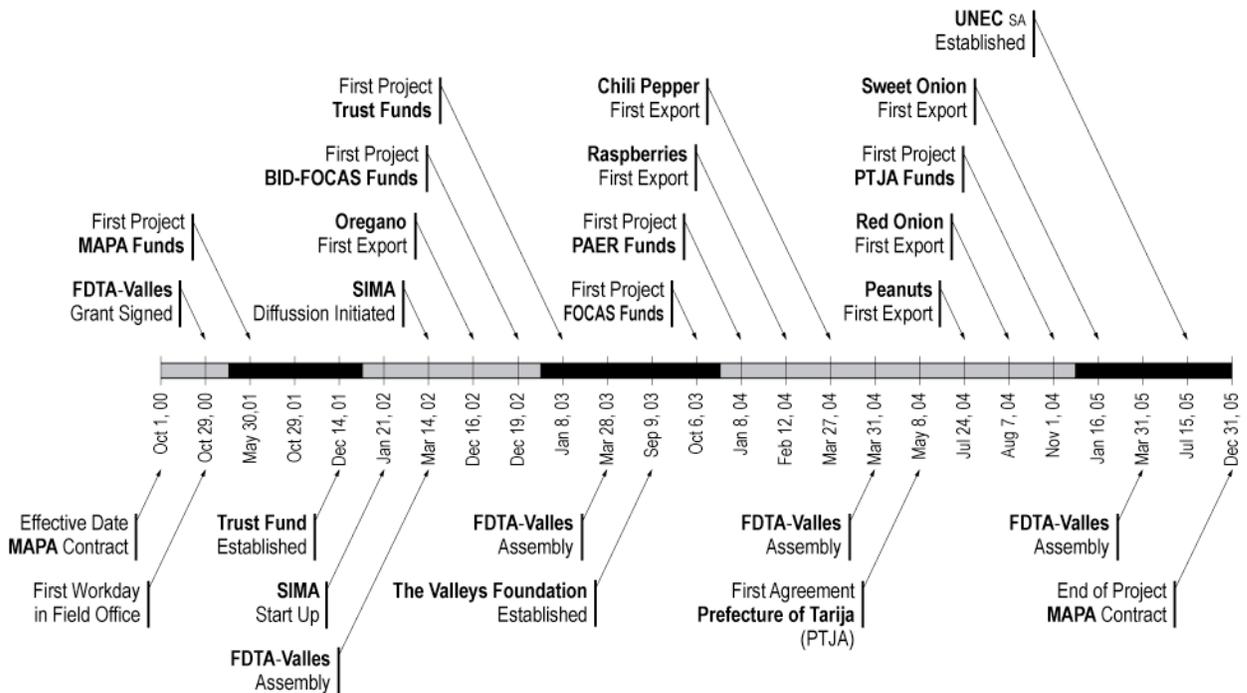
INTRODUCTION

In this chapter, the MAPA approach to identifying and strengthening commodity chains is described, followed by detailed descriptions of interventions and results in each of 10 commodity chains. Assistance to FDTA-Valles is also described with an assessment of its current status and challenges. The chapter concludes with recommendations for further assistance in the Valleys region and to the FDTA-Valles.

In the Valleys region, MAPA and FDTA-Valles acted as a single entity. Any MAPA success was also an FDTA-Valles success. In this section, any credit given to MAPA equally applies to FDTA-Valles.

TIMELINE

MAPA-Valleys Timeline



THE MAPA APPROACH

The first issue that faced the MAPA team was deciding which crops to focus on. We resolved that in three ways.

First: The traditional approach to answering the question is to commission detailed studies that compare commodities and identify the best ones. We did not do that. Rather, we held a retreat with our technical team and a few selected individuals. This group represented a deep knowledge base of the region, agriculture, and the constraints and markets associated with the valley's region. We first listed all the crops that were being commercially grown or could potentially be grown in the region, ending up with a list of about 200 crops. We then used a list of criteria that included such things as environmental impact, social impact, difficulty of producing, and so forth. The base criterion was always the market. There had to be a good market in terms of accessibility, profitability, and absorption capacity. We used the "Delphi" technique to help us move through evaluating these crops. This involved giving each participant a set of cards, numbered one through five. Five meant very favorable or attractive for MAPA consideration. For each crop, for each criterion, on the count of three, each participant held up a card. If the numbers clustered, say fours and fives, we took the average and posted the score without discussion. If the numbers spread out along a larger range, we stopped and discussed the reasoning of the participants. Once we had heard the arguments, we voted again and took that average score, even if the range continued to be large. We then took the 20 or so highest-scoring crops and began a head-to-head comparison as to which represented the most interesting opportunity in terms of there being feasible, appropriate technologies for poor farmers to apply that would result in higher profitability for them in the markets. The process had already eliminated crops that had environmentally or socially negative aspects, so in the end, we had a list of about 12 commodities of high interest.

At that point, we conducted limited studies of each selected crop to make sure the assumptions of the group were borne out with data. Only one crop—dry beans—was dropped from the list because of the validating studies. Our studies showed that the accessible markets were not as attractive as we had thought, given the production costs and constraints.⁵

Most of the crops under MAPA came from that original list. This technique may not identify the absolutely best crop options, but it is an effective and efficient way to identify really good options. The system proved itself in application. When the initial interventions proved successful, the selected commodities evolved into programs where we worked out combinations of interventions implemented across PITAs and beneficiaries to become a commodity-chain-wide complex of work that built upon itself and lent itself to multiplication to more growers.

Second: We initiated a "new opportunities" program in which we generally considered crops that were not being grown in the region. They were crops that, in our team's judgment, could represent significant income opportunities if they were produced in Bolivia. We introduced them for trial production to see if they were commercially viable. Raspberries and oregano are two crops from this program that have graduated into full-scale commodity programs.

Third: The third approach to selecting crops was the most adventuresome. We asked ourselves the following question: What could we do now that might have a particularly important benefit, say 50 to 100 years from now, even if the benefit might not necessarily be visible by the time MAPA ends? We asked that question because, in the long-

⁵ Bolivia is the exception to most Latin American countries in that dry beans do not make up a significant portion of the traditional diet. I believe the reason is that historically, the predominant Bolivian population centers were in the Andes. At these high elevations, water boils at a lower temperature and therefore cooking beans requires a very long boiling period. For people who live in a fuel-scarce environment, the energy cost was unacceptably high to cook beans. As a result, even today the national market for dry beans is not large for a Latin American country.

term, the best options might not be what one might consider when constrained by short-term needs. MAPA, like almost all donor-financed agricultural projects, must show positive impact within the life cycle of the project. MAPA was originally financed for three years, with two extensions of one year each. That meant we had to show results within three years. The successful establishment of a sustainable agricultural industry rarely occurs in less than fifteen years. Donor-financed agricultural interventions must, of necessity, focus on crops that are already in production, and that are typically, short cycle. Those may not be the most economically or environmentally advantageous crops if one used a longer time horizon. By asking ourselves this question, we decided to add one crop to our intervention list: piñon pine trees. This is a crop that will not show any tangible results in the life of MAPA or MAPA 2 but may be of high value at some point in the future.

Commodity Chains: The food that ends up on our plate gets there after having passed through a long chain, including the seed producer, the grower, the transporter, the wholesaler, the processor, and so forth. We called this the commodity chain. One of the common attributes of donor-financed projects is to emphasize one aspect of that chain. They may be limited to certain commodities, certain regions, certain growers, etc. A focus on production has probably been the most frequent constraint imposed. Fortunately, USAID did not limit MAPA, other than to work in the valley’s region. Beyond that, we were free to intervene in the commodity chain where we could have the highest impact, at the lowest cost. As it turned out, this most commonly meant assistance with post-harvest management. Even once we had made our selection for an area of intervention, we did not ignore other constraints, but worked to make sure all links in the chain functioned as well as possible to get the highest quality, lowest cost product into the market in the conditions that the market wanted. The market was always our guide. Furthermore, no matter where we intervened in the commodity chain, we always did it with the understanding that there must be a traceable benefit to the farm family.

COMMODITY CHAINS

In this section, results are presented for each of the major commodity chains.

ONIONS

The traditional production of onions in Bolivia is characterized by the use of poor seed from degenerated varieties of red onions that produce inconsistent sizes, shapes, and colors. They also have poor germination rates. The shelf life, from the time of harvest until the onion must be consumed is about 10 days. Post-harvest losses are in the range of 40

percent or more. Onions are typically harvested and thrown loose into a truck that bounces across terrible roads to the closest market. Because they are put in 200-pound sacks, there is a low survival rate of the onions at the bottom of the sack. Intermediaries who take their trucks into the countryside and buy onions are well aware of the high loss rate and accordingly penalize the farmer with low prices or the obligation that the farmer provide a larger volume than that for which he is paid. For instance, it is common for the trucker to pay for 10 bags at the agreed-upon price, but the farmer is required to give him 12 or 13 bags. This addition is called a “*yapa*.” In English, we would say a “baker’s dozen.” Some people would complain that this is an example of how the middleman gouges the poor farmer. Yet, it is a realistic system that penalizes the farmer for doing a bad job. The farmer is typically selling a poor quality, non-uniform product that is often dirty, badly packaged (if packaged at all), and in other ways in stressed condition. This

ONION PROGRAM	
Projects	21
Beneficiaries	10,823
Average income increase by crop	70%
Average household income increase	35%

penalty is the free market's way of telling the farmer to get his act together.

MAPA changed this dismal picture by introducing a series of low-cost, easy-to-implement, high-impact actions. We taught farmers to cure, dry, and classify their onions. We introduced a more manageable 25-pound bag, and we helped with the marketing.

Curing is the process whereby the harvested onions are left on the ground, in rows, with the leaves laying over the tops of the onions to protect them from the sun. Over the course of two to three days, the liquid from the leaves is transferred to the bulb and the leaves start to dry up. In this way, the onion bulb actually gets heavier after it has been harvested. The leaves and roots are then cut off, about an inch above the bulb. The onions are placed in burlap bags and left in the field. The bags protect the onions from the sun but allow airflow to complete the drying process. After three or four days, the onion stems are dried and no liquid emerges if they are squeezed. In this way, the bulb is better isolated from disease and pests that might otherwise use a wet stem for entry. The outer layer of the onion dries and provides protection to the rest of the bulb from bruises. The onions are then sorted by size and shape, and defective bulbs are removed. They are placed in plastic bags with an open mesh that allows for free airflow. Onions so treated can be stored in a cool, dry place for three months or more. These simple interventions reduced post-harvest loss from an average of over 40 percent to about 8 percent. The additional cost was labor, a reusable burlap bag, and a mesh bag for final packing. They gave the farmer greater flexibility in terms of when and to what market he sold. Using these techniques, the farmer is no longer penalized by the intermediary as he was before. Among market wholesalers, there is a predominance of women. They were quick to accept the new 25-pound bag. One wholesaler commented that she no longer had to have a hired hand at her side to move every bag, as she can now manage them herself.

Suppose you could have participated in a meeting at the outset of MAPA, and suppose you were asked to comment on the following plans. In 2001, there were about 4,300 onion producers in the valley's region. By the end of the 2005, we will plan for 6,800 participating producers that are growing onions as part of the MAPA-FDTA-Valles onion program. In this same timeframe we will increase the acreage in onions from about 2,500 Ha to about 5,600 Ha. We will raise productivity per Ha from 13 to 25 tons per Ha. What would you have said about such plans? In many cases,

One of the first transporters to purchase onions managed under the MAPA model already had half of his truck filled with onions that had been handled traditionally. He filled the other half with onions treated as we had prescribed. He was reluctant because they were in unfamiliar bags and because he had to pay for all the onions, without the usual *yapa*. On the way to market, he was stopped for four days by a washed-out bridge. By the time he got to the market, all of the traditional onions had rotted or so deteriorated that he could not sell them, but he lost none of the onions managed with the MAPA system.

Farmers who live on the edge of subsistence are wisely risk averse. When we started working in onions, we could not find a farmer who would risk changing the traditional way he managed his onions just because we told him it was a good idea. So we purchased a field of onions still in the ground and hired the farmer to manage them as we directed. This resulted in a much larger volume and better quality onions than would have resulted under traditional management. On the day the bagged and classified onions were standing in the field ready to be shipped, the farmer's wife came to the field for the first time since we had started harvest. She was incensed and wanted to know what all these imported onions were doing in their field. She could not believe that they were their onions. There were too many of them and they looked too good.

Nicanor Chávez Soto, an onion farmer, was asked if working with the FDTA-Valles onion program had benefited him. He said: "I have been producing onions for a long time. The lot that I planted this year with FDTA-Valles has given me twice the yield of my other plots where I planted traditional red onions. I have really benefited, earning a good return. It has saved my year. I was able to harvest and sell very rapidly at a good price. I was paid 70 Bolivianos per sack while I got 40 Bolivianos per sack for my other onions." Mario Valderrama, another onion grower said: "This has been a 180-degree change in our traditional onion production. We have seen results in our income. For example, last year with the traditional onion production, I sold a 250-pound sack of onions for 25 to 30 Bolivianos. With the new production, I have sold 220-pound sacks at 60 to 70 Bolivianos. That is a very important difference and has improved our income."

faced with these numbers, people would say: “You are going to create a disaster! You will flood the market with onions, the price will crash and farmers will be destroyed.” Well, those numbers reflect what we actually did. However, there was no disaster. On the contrary, gross income to the average onion farmer increased from Bs4,900 in 2001 to Bs19,600 by the end of 2005. The average price per kg. to the farmer raised from Bs0.65 to Bs0.92. The size of the Bolivian onion business grew 590 percent. There are now Bolivian onions in the market for most of the year. The onions are now of better quality. The post harvest losses were down dramatically. AND, the average price to the consumer dropped. No matter how you look at it, this is development at it’s best.

In the future, the primary effort should be to increase the number of farmers trained in the practices described herein. Some have worried that the more farmers apply these practices, the more likely we are to flood the market with onions. What will actually happen is that good quality onions will be available for more of the year. Farmers’ costs will be reduced and they will have more volume. This will continue to result in lower prices, but higher profit margins. Importantly, the improved product will allow Bolivia to compete in export markets. Opportunities for additional improvements in the commodity chain include resolving the problem of bags. Presently, there is no Bolivian company that produces the appropriate size and quality of bags for onion. Having locally manufactured bags will reduce costs and allow for better product differentiation. There is a good deal of room for improving marketing systems, especially for export, in terms of opening markets and building business models for marketing that use onions as one element of a year-round marketing program. Finally, there are opportunities for diversification by producing additional varieties of onions.

SWEET ONIONS

Certain varieties of yellow onions, grown under low-stress, low-sulfur conditions, turn out to be both mild and sweet.

A degenerated variety of red onion was the most commonly grown onion in Bolivia. MAPA tested a number of white and yellow onions to see which responded best under local growing conditions. Based on the results, we instituted a program to produce sweet onions.⁶ There is a small market window for Bolivia, from mid-December to mid-February, to sell sweet onions in the U.S. The MAPA sweet onion program evolved to include producing them in the *Altiplano*. This is a high-altitude environment with temperature extremes and many weather vagaries: think of trying to farm on top of the highest mountains in the continental U.S. We reasoned that these stressful conditions made life difficult for diseases and pests, just as they do for growing crops. Because of the unique growing conditions there, we initiated the successful effort to grow certified organic sweet onions. Three markets have been targeted, the brief market in the U.S., the Bolivian market, and Brazil.

We completed one year of commercial trials successfully and farmers earned more than they usually did for onions. We learned many lessons, and we now know how to increase efficiency to make the effort more profitable. We expect that MAPA 2 will be able to capitalize on this knowledge and prove sweet onions, and organic sweet onions in particular, to be commodities with great potential for increasing farmer income. We know of no place else that is commercially growing sweet onions organically, thus giving Bolivia a unique product in the marketplace. Now that we have proven that it is possible to grow organic sweet onions, MAPA 2 will make a major effort to market them so as

⁶ Until about 15 years ago, all sweet onions were grown in the United States. Another USAID-funded effort in Central America (PROEXAG and EXITOS, both Chemonics-implemented projects) introduced sweet onion production including exports to the United States. That initial USAID assistance has grown into a \$30 million a year export business throughout Latin American to one buyer in the United States. Every year, that one crop alone produces a market value that is more than three times higher than the entire nine-year cost of both USAID projects. It is an excellent example of how powerful USAID’s agricultural development efforts can be. We have every expectation that MAPA-initiated work will show similar long-term benefits.

to maximize the return to farmers.

For the future, an aggressive program of organic production could give Bolivia a unique niche in the markets, particularly in Brazil and the United States. This will require intensive management to retain organic certification. It will require, as with conventional onions, a well-planned and executed marketing program. It will require the development of sources for large volumes of high-quality organic fertilizer. Finally, it will require the institutionalization of relationships between growers, the two FDTAs (Valles and Altiplano), and marketing businesses.

PEPPERS

MAPA worked with two types of hot peppers: *locoto*, and *ají*. *Locotos* are shaped somewhat like bell peppers, but are smaller. Their colors may be green, yellow, orange, red, or combinations thereof. They are typically eaten fresh and are usually very spicy. *Ají* is usually red or orange and is a narrow pod from six to eight inches in length. It is typically dried and crushed for use as a condiment. There are hot and sweet varieties. We worked more with the hot varieties.

Locoto: The average *locoto* farmer cultivates about $\frac{3}{4}$ of a hectare. It is all hand labor. Peppers are highly susceptible to pest and disease pressure. The longer a growing area is used, the smaller the harvests tend to be because of these problems. *Locotos* could theoretically be grown for most of the year in the temperate areas of Bolivian valleys where they are cultivated. In reality, the harvest period is reduced to a two to four-month period before the plant succumbs to pests and disease. Farmers apply chemical cocktails in accordance with their best guesses.

The MAPA intervention in *locoto* first reduced the use of chemicals. MAPA–FDTA-Valles identified the appropriate treatments and application schedules, reducing both the toxicity and the volume of product applied. In some cases, chemical use dropped by 80 percent. We taught the growers to use seedbeds to start their plants, and then to only transplant healthy plants. We taught them to remove diseased peppers and plants from the field. Finally, we helped them better manage their post-harvest practices to reduce damage. The results were dramatic improvements in the volume and quality of the peppers harvested. We not only improved the productivity of plants, but also dramatically lengthened the harvest season, from three or four pickings to as many as eleven or twelve.

In spite of the positive benefits, the areas where *locotos* are grown are

HOT CHILI PEPPER PROGRAM (<i>LOCOTO</i>)	
Projects	2
Beneficiaries	752
Average income increase by crop	69%
Average household income increase	23%

CHILI PEPPER PROGRAM (<i>AJI</i>)	
Projects	7
Beneficiaries	2,371
Average income increase by crop	42%
Average household income increase	25%

Two brothers each opened $\frac{1}{2}$ hectare of virgin land three years ago and planted *locotos*. They each harvested about 40 100-pound bags of *locotos* the first year. The next year, pest and disease pressure reduced both of their harvests to about 30 bags. The third year, one brother agreed to work with MAPA, the other did not because it required payment of a nominal amount. At the end of that year, the non-participating brother harvested about 40 bags of peppers. The participating brother harvested 200 bags. Furthermore, much of the participating brother's harvest occurred in periods when *locotos* are scarce in the market, resulting in high prices. As a result of the increased income, he added a room to his home, sent his daughter to boarding school, and had money left over for a savings account.

affected by anti-government, anti-U.S., anti-alternative development movements that are closely linked to the MAS political party and the Chapare coca-growing region. There is a good deal of annual migration back and forth between *locoto*-growing region and the Chapare. Those linked to the drug trade do not want anything to happen in the region that increases the presence of the national government or gives a positive image to the government. They want people to stay economically dependent on the production of coca. By extension, they do not want a project like MAPA to help farmers gain economic independence with the concomitant political independence that might entail. Therefore, the political pressure against the project in this region was strong. It resulted in non-payment of the required 15 percent of the value of the project by the farmers or their municipality, making those areas ineligible for future assistance. Nevertheless, on average, we increased the volume of marketable product by 25 percent across all farmers. Many farmers who were very careful to follow our instructions experienced much higher income returns. Those benefits will continue to be realized. Farmers, including those who stopped participating in our projects, continue to benefit from the lessons and systems they learned from us. We expect this year's harvest to be about 6,000 tons, of which over 1,000 tons will be attributable to the improved practices farmers learned from us.

Ají: The typical *ají* producer loses about 65 percent of pods to disease, pests and post-harvest loss. MAPA reduced that to an average of about 15 percent. As with *locoto*, we taught integrated pest management and improved drying practices. We also worked extensively to improve the marketing of the hot peppers. We shortened the marketing chain, bringing the farmer closer to the processors. We started the *Feria del Ají* that is now managed by the municipality of Padilla. This year, this country fair resulted in the sale of about 390 tons of hot peppers to buyers from Brazil, Argentina, and Bolivia. In the three years the fair has been held, there have been over \$2.5 million of sales directly to the farmers. Demand for the product continues to greatly exceed production. As part of our commodity chain approach, we also worked with processors, helping them improve their operations, access to processing equipment, and marketing. As a result, we significantly improved the demand for the product by these local businesses. This, in turn, has encouraged farmers to increase plantings.

Future work in *ají* can concentrate on extending these proven technologies to more producers. Marketing systems will have to become more sophisticated. Packaging and processing are also areas where profits can be increased. With regard to *locoto*, it may be that the most important future interventions are social rather than agronomic: the production areas are so closely tied to political sensitivities surrounding the coca issue that they neutralize technical solutions to problems.

TOMATO

Most of the tomatoes grown in Bolivia are of the roma variety. MAPA introduced varieties of salad tomatoes and taught improved integrated pest management. We also worked with farmers to alter their packaging to reduce damage.

The tomato projects worked in the traditional tomato-growing regions, including Mairana, Saipina, Comarapa, and Omereque. The project impact was dramatic. This was the effect of lower costs because of reduced chemical use, lower post-harvest losses, and improved prices for the newer varieties. We introduced packaging alternatives, including smaller wooden boxes and the use of cartons. However, there were problems. The most serious problem had nothing to do, directly, with agriculture. The SIBTA model requires that we work with organized groups

TOMATO PROGRAM	
Projects	4
Beneficiaries	697
Average income increase by crop	338%
Average household income increase	18%

of farmers. In the case of tomatoes, we had difficulty with poorly organized farmer groups and cases of non-transparency. We were faced with cases in which supposed groups of potential beneficiaries either did not exist or were not represented by the individuals seeking to work with the project. There was non-compliance with the required payments. Because of these problems, we had difficulty with this commodity chain in assuring high levels of adoption for the technologies introduced. As a result, even though the benefits were considerable, the number of beneficiaries was relatively low. There will be many social-organizational challenges to be resolved if there are to be future successes in the tomato-growing industry.

There were also problems with the packaging. Most importantly, the use of paper boxes proved to be the best option in terms of reduced tomato damage in transit. The problem is that the cost of using paper boxes is high relative to wood boxes because the cardboard is not re-used, and the carton producing industry of Bolivia is not yet capable of meeting the demand for this type of packaging.

Perhaps one of the most important lessons from efforts like ours in the tomato industry is that the constraints to long-term sustainable agricultural development do not necessarily have anything to do with the technologies applied on the farm. In this case, social-organizational complications, and the lack of capacity in support industries, are the most serious constraints.

By the end of the MAPA project, there were serious considerations being made with FDTA-Valles regarding whether or not additional projects for tomato production should be undertaken. This commodity chain is, in some ways, an enigma. The project interventions were very effective and incomes increased dramatically. However, there were significant difficulties with regard to the viability and transparency of the organizations that ostensibly represented the tomato growers. Even more problematic, this is a crop that is grown in a chemical-rich environment: in fact, some of the significant income increases resulted from helping growers reduce their use of chemicals. Nonetheless, chemical use remains high. The project did not purchase chemicals nor did it deviate from the EPA-registered treatments and regimen. It would require higher levels of investment, technological sophistication, and intensive management to reduce or eliminate all chemicals than could likely be sustained in the future with the limited resources available.

TABLE GRAPES

Table grapes are grown in the southern areas of the Valles region, around the city of Tarija. They are seeded, and are also used for the production of wine and singani.⁷ The highest quality grapes are typically sold as table grapes.

As with all other products, MAPA–FDTA-Valles sought interventions that would have the highest impact with the lowest cost. In this case, our efforts focused on the management from the point of harvest on. We introduced the appropriate scissors for shaping clusters. We introduced the use of plastic boxes that greatly reduced damage to the grapes during transport. We worked extensively on the marketing chain to improve the commercial relationship among farmers, transporters, and wholesalers.

We have encouraged growers to move in the direction of producing “ecological” grapes, meaning grapes produced

TABLE GRAPES PROGRAM	
Projects	7
Beneficiaries	2,010
Average income increase by crop	83%
Average household income increase	10%

⁷ Singani is a clear, 80-proof spirit made from Muscatel of Alexandria grapes and is named after the town of Singani (Potosí, Bolivia).

without the use of pesticides, even though they have not yet achieved organic certification.

Farmers employing these practices are getting higher prices and there is widespread interest in continued participation and expansion of the program.

For the future, as with other commodities, there is much to be gained for Bolivia by simply expanding the adoption of these practices to more growers. One significant advantage will be when the plastic boxes are manufactured in Bolivia and do not have to be imported.

PEANUTS

Involvement in peanuts is one of the more recent commodity interventions, only covering the last two crop cycles. The peanut is native to the Andes. Our work with this crop differs somewhat in basic concept from the other crops with which we worked. When the cost of labor is low, it makes sense to concentrate on crops that are labor intensive and difficult to mechanize. The cultivation of peanuts is best managed with mechanization. The comparative advantage of Bolivia lies in varieties, growing conditions, and the possibility of producing seed.

PEANUTS PROGRAM	
Projects	5
Beneficiaries	1,844
Average income increase by crop	30%
Average household income increase	32%

Our efforts have centered on several areas. We have worked to identify appropriate varieties. These have been studied to identify the best in terms of seed size, number of seeds per pod, flavor, and growing characteristics. We helped farmers adopt cultural practices appropriate to producing seed for planting because of the considerable price advantage to producing seed. This requires much more careful cultural practices and controls, but it yields more profit. We have worked to introduce appropriate machinery that is effective, but reasonably priced. Finally, we have assisted in improving cultural practices to reduce the use of chemicals, and in harvest and post-harvest management. These interventions have proven to be effective and have had a considerable positive impact.

To date, just under 600 hectares of peanuts have been included in projects. About half of that has been for national consumption and half for export to Japan. A total of 16 tons of peanuts were exported to Japan last year.

Collaboration has been especially important for this commodity. FDTA-Valles has cooperated with FDTA-Chaco and FDTA-TH (Trópico Húmedo) so that there is consistency among our efforts, as this crop is being grown in all three macro-environmental regions. In addition, we have enjoyed a collaboration with peanut specialists of the University of Georgia and the University of Florida through their relationships with ANAPO, as well as local contractors.

Flora Ferrel, a 52-year-old female peanut farmer experienced dramatic improvements in the productivity and quality of her peanuts. She was asked what she has done with her increased income. "With the sale of my peanuts I have been able to pay off a two-year-old farm debt. I have bought metal roofing and replaced the clay and straw roof of my house. I have fixed my teeth (smiling to show her new teeth with pride), and I had a little left over I have put into a savings account." She reported that her sister did not participate and that she had a bad farm year. As a result, she now has to work at heavy labor off the farm to earn enough to survive.

FDTA-Valles will continue the peanut program into the future. There is a great deal of growth potential in terms of spreading the value of these interventions to more growers, and in terms of increasing the number of markets and the marketing systems. The technologies are not sophisticated while the returns from the improvements are very attractive. There are a great many more producers that can be involved and the volume and value of product will have

a significant impact on the economy.

PEACHES

Peaches grown in Bolivia tend to be small and strongly flavored. One of the common uses is to cut a spiral of skin from the peach then allow the peach to dry. It is later re-hydrated and made into a refreshing drink. A large portion of the peach trees are used as field boundaries and wind breaks. Most Bolivian peaches are consumed nationally and are not sought in the international market. Our assistance to the peach growers has involved improving post-harvest practices so that the fruit is in better condition when marketed. It has included integrated pest management and improved marketing. We have introduced simple fruit dryers that are more effective and more hygienic than traditional practices. We also initiated a program of trying out improved varieties to test which will work best under the local growing conditions. We encourage growers to manage their production as orchards and we have provided training in business practices associated with orchard management. We also initiated the expansion of the program to include nectarines, apricots, and plums.

PEACHES PROGRAM	
Projects	8
Beneficiaries	1,156
Average income increase by crop	40%
Average household income increase	24%

Most of the MAPA interventions had an immediate benefit to the growers. For the longer term, a peach program will have to consider the markets to be targeted. For instance, an export program wider than the southern cone of South America will have to consider new varieties and commercial-level grafting programs. There will have to be substantial improvements in cold-chain technology and management, in packaging, and in transport and marketing. More growers will have to become more formal about cultivating orchards. All this will require significant investment, intensive management, and time. After all, peaches do grow on trees, and trees are a long-term proposition.

BERRIES

Brambleberries (raspberries and blackberries) are a new crop in Bolivia. Unlike most of the MAPA efforts, in which we improve the commodity chain of existing products, with berries we started pretty much from scratch. Plant material had to be imported. Trials had to be conducted to test what varieties worked best. People and businesses had to be trained in every aspect of land preparation, cultivation, harvesting, post-harvest management, integrated pest management, marketing, packaging, and so forth. Our major emphasis has been in getting the raspberry industry going, but we are also working to establish blackberries and blueberries. It takes two to three years to establish commercial plantings of these commodities. Based on the work of MAPA, the MAPA 2 project will be a year or so away from commercial trials in these new products.

BERRIES PROGRAM	
Projects	4
Beneficiaries	211
Average income increase by crop	173%
Average household income increase	7%

As noted, when everything goes right, it takes about 15 years to establish a new agricultural commodity chain. Obviously, this exceeds the life span of MAPA, but we did advance the raspberry industry through the phase of plant trials, semi-commercial production, and to full-scale commercial production. There are now established businesses and product management systems that assure us the industry will continue to develop. We opened the export market

and product management systems that assure us the industry will continue to develop. We opened the export market in Brazil and began serving the major markets of Bolivia. Last year, we achieved about \$20,000 in sales. This harvest year, that figure should be in the hundreds of thousands of dollars.

For the future, the brambleberry program may represent a particularly difficult decision for FDTA-Valles and MAPA 2 as to how aggressively the program is pursued. This commodity is quite unlike the others described above. Most of the work done with the other commodities has been designed to make low-cost, highly targeted interventions that return significant income gains. The raspberry program has involved introducing the plant material, the cultural practices, the post-harvest management systems, packaging, cold chain, IPM, and marketing. This is the most perishable of the crops MAPA worked with. It is the most management-intensive and time-sensitive. It has the shortest shelf life. It is perhaps the least forgiving of lapses and errors. It may take the longest to consolidate. On the other hand, it is, potentially, the most profitable. The question is whether or not the potential long-term profit potential will be deemed by the board of directors of FDTA-Valles to be sufficiently rewarding, taking into account the costs and intensive management required.

Silvia Méndez is a single mother with two small daughters. Her elderly father lives with her as well. Their living conditions are rustic and stressed. Silvia planted 1,000 square meters (1/4 acre) of raspberries. She proved to be a particularly careful grower and followed our instructions closely. In addition, she is a resourceful person. Her berries produced well. She sold most of her crop for export. The remainder she used to make raspberry ice cream and raspberry flavored yogurt. She then marketed these homemade products to students from a school that is not far from her home. It is with considerable pride that she shows visitors what she did with the profit from her first year's raspberry production. She installed a real bathroom in her home, and not just any bathroom, but one with ceramic tile floor and walls, as well as the normal fixtures. It is the showpiece of her home. The quality of life for her and her family have improved dramatically with this addition. Silvia is committed to continue her raspberry farm and now sees options and makes plans that were only dreams before she became a raspberry producer.

NOT AS EASY AS IT LOOKS

Seeing the significant benefits that have resulted from MAPA's work might give one the impression that this success just sort of happens. It doesn't. The following is a laundry list of some of the things that have gone wrong in getting the raspberry program up and running. Any of these elements could be fatal to the program were it not for a team that is capable, dedicated, and resourceful, and that refuses to allow problems to get the best of them.

- When the first imported raspberry canes arrived, the SENASAG (plant inspection) agent was not available. We got the canes out of customs and took them to a green house to hold them until they could be inspected and given official entry to the country. To comply with regulations, we gave the plants no treatment other than water. The weather was rainy and overcast, for a week, before the inspector went to see the plants. In that time, some of the leaves showed signs of powdery mildew, which is endemic in Bolivia, and to be expected under the wet overcast conditions with no fungicide treatment. When he finally did arrive, the inspector ordered thousands of dollars of plants burned.
- The SENASAG inspectors of imported plant materials charge a fee, but it is not uniform. In Tarija, where the new plants should have arrived, the SENASAG office would charge 30 cents per plant, or 6,000 Bolivianos for the 20,000 canes being imported. By contrast, the charge was 350 bolivianos for the shipment inspection in Cochabamba. So, we had to import the canes to Cochabamba, instead of Tarija, then re-transport them to Tarija. Similar disparities exist for export inspections. When fruit was exported, the SENASAG office in Tarija charged us 300 bolivianos to inspect a 100 kg. box of raspberries. By way of contrast, the SENASAG office in Chapare charged 40 bolivianos to inspect a 22,000 kg. truckload of bananas.
- One of the organizations we worked with had been subsidized by other donors for years and found it next to impossible to operate with a business mentality. Inefficiency and internal politics, not profit motive, characterized the organization. One manager was paying growers more for their berries than the price of the sale of the berries, in order to protect his employment position, as the growers were voting members that determined whether or not his contract was renewed. Growers that delivered the fruit in buckets leaking juice were paid the same price per kilogram as those using export-quality punnets.

(Continued...)

NOT AS EASY AS IT LOOKS

(...continued)

- Two of our staff went to Sao Paulo to receive a shipment of berries and do follow-up in the markets. They were appalled when they opened the E-container to find most of the fruit totally green. It seems another manager decided to tell farmers to harvest green fruit so it would have a longer shelf life. In addition to being unacceptable in the market, the fruit was almost impossible for farmers to harvest without damage, and when the berries did redden, they had no flavor.
- Acting independently from our instructions, a manager ordered a shipment of punnets. They arrived in La Paz in the middle of social commotion. We sent one of our staff to pick up the box of punnets. He faced significant personal danger when he had to abandon his vehicle and carry the box on his back past blockades and social demonstrations to try and get the punnets to the packing plant on time to make the next export shipment. When the box was opened, it was found the manager had ordered the wrong size punnets.
- In Sao Paulo, our export market, the government employee who operates the customs office where our fruit must be cleared has a side job working for the company that is Bolivia's main competition in Sao Paulo for raspberry sales. As might be expected, delays and difficulties have been common in clearing our fruit.
- The system of charging for inspections in Sao Paulo is by shipment, not value, so our small boxes of raspberries were charged the same inspection fee as a whole truckload of produce, thus reducing profitability.
- The Bolivian transport chain is not yet used to handling perishable products. We followed one shipment of raspberries from Tarija to Santa Cruz, where the box was marked to be placed in the airline's cold room. The airline employees assured our technician that the box would be placed in the cold room. Our technician insisted on staying until he personally saw that the box was put in the cold room. As it turned out, they could not even find the box. They looked for three hours before it was finally located and placed in the cold room. That it made it to the cold room at all was due to the presence and insistence of our technician.
- The first raspberry export shipment was carefully prepared with the ripe, fragile berries protected in small plastic punnets. These were further protected by being placed in cardboard flats that kept weight off the punnets. The stack of flats was covered over with frozen gel packs to protect and cool them on their trip to Brazil. Our technicians delivered the box, clearly marked "fragile" and with arrows showing that the box should be kept upright. They delivered the box to the airline with instructions on its handling. They then went upstairs to watch through a waiting-room window to make sure the berry box was loaded on the airplane. To their horror, they stood helplessly, pounding on the window and yelling as they watched an oblivious airline employee roll the box end-over-end across the tarmac out to the aircraft.
- One of our berry shipments, after it was cleared from customs in Brazil, was put on the truck and sent off to market. On the way, the truck was hijacked and disappeared along with our raspberries. We have no way of knowing if this was a real hijacking or a way for our powerful competitor to keep our superior project out of the supermarkets. Either way, the berries were history.
- Just as we were preparing to make a shipment, a government employee, who had to approve the shipping documents, went on a personal strike, refusing to process any documents to protest the fact that he might not be re-contracted at the end of his contract the following month.
- We asked a consultant to hand-carry 50 pounds of gel powder. This white powder is mixed with water to form a thick gel that can be placed in packets and frozen. These packets are packed in export containers with the raspberries to provide the necessary cooling to keep the berries fresh while they travel to market. Homeland Security took a special interest in this white powder when the consultant tried to board a flight to come to Bolivia. No amount of explanation would suffice. They confiscated it.
- The day we were to send a large shipment of berries to Brazil, representing eight percent of the season's exports, a series of road blockades went up minutes before we left for the airport with the shipment, and as a result we could not get to the airport with the berries. The buyer in Brazil had all the marketing connections pre-arranged and was in panic when we advised him. Finally, after three days, we were able to get to the airport, but had to use a different airline, costing three times more for freight, to get the product to our buyer and not lose the marketing link.

And so it goes. We could make a similar list for every commodity. If we, like the military, and gave out medals for heroic acts above and beyond the call of duty, all of our staff would walk around in clanking finery because of their constant, creative, and extraordinary efforts to solve all these problems and make our projects function in spite of the endless, unforeseeable, unimaginable, hair pulling, and hair raising difficulties that are our constant companions. The concepts of good development are divinely simple. Their implementation is devilishly difficult.

OREGANO

In the valleys of Chuquisaca, east of Sucre, it is difficult to grow and market agricultural products. Land holdings are small and so fragmented within families that few opportunities exist for young adults. Annual average income per household is less than \$1 per day. These high-altitude valleys have low rainfall, poor soil conditions, and wide temperature variations.

The roads are in poor shape and often adversely affected by bad weather. Chuquisaca farmers use simple farming technologies and consume most of their annual potato production. Despite all these obstacles, the subsistence farm families in the valleys of Chuquisaca have recently undergone a major transformation—in large part due to the success of the MAPA project.

The person who really gave life to this commodity chain is Enrique Rivas of the MAPA staff. This was a particularly difficult commodity to develop because of complex social and political relationships among the cooperatives, with the parent cooperative, AgroCentral, and with SOCODEVI. The AgroCentral vision was paternalistic and oriented toward sustaining the commodity chain through subsidies. The SOCODEVI vision was shaped by its experience with cooperatives in Canada, that are quite unlike those in Bolivia. MAPA and FDTA-Valles took a very business-oriented approach. In the end, the MAPA–FDTA-Valles approach was adopted and has proven to be effective. The ambassador for that approach, and its executor once accepted, has been Enrique. This very successful commodity achieved its success largely due to his diplomacy, technical excellence, persistence, creativity, and undeviating vision.

The MAPA project teamed up with SOCODEVI, a Canadian-financed project, to work with this crop. Since the weather and soil conditions in the valleys are similar to Turkey and Greece, where oregano originated, this crop was selected for trial promotion. Oregano flourishes in difficult climates and is a high-value crop with a stable year-round worldwide market demand. It can be successfully sown in small plots with simple technologies. In its dried form, oregano is not perishable or adversely affected by transportation difficulties.

MAPA provided technical assistance to 200 families of the Chuquisaca valleys to initially grow twenty hectares of oregano. By the end of the first year, the area under cultivation had doubled to forty hectares involving 400 families. Project staff worked hard to improve management practices; increase productivity; introduce good drying, packing, and post-harvest management techniques; and improve and expand the product market. High-quality dryers were installed in the production areas and two collection centers were built. These helped double the income of the farmers. In December 2004, the first shipment of six metric tons of dried oregano valued at \$7,500 was exported to Brazil. This marked the first time that Bolivian oregano had entered the Brazilian market—a market with excellent long-term possibilities.

For many of the valley’s farmers, oregano was their first cash crop, and it broke the monotonous cycle of subsistence farming. The farmers are elated with the benefits of additional income and discretionary time. Farmers only have to plant oregano once every

SPICES PROGRAM	
Projects	4
Beneficiaries	643
Average income increase by crop	91%
Average household income increase	21%

The U.S. Ambassador stood on the edge of a small oregano plot, chatting with its owner about the crop. The ambassador asked the farmer how much more he made growing oregano than he had when he grew potatoes on the same small plot. The farmer was perplexed and did not know how to answer. After a short conversation, it became clear that his puzzlement was because he had never made any money from growing potatoes. His family ate them all. The question was re-phrased. “What do you do with the money you make from growing oregano?” With a wide grin, the farmer explained that for the first time in the history of his family, his children were attending school. This was possible because of the cash from the sale of oregano and the reduced demand for labor the crop requires compared to traditional crops.

six years and can harvest it three or more times per year, whereas potatoes are planted and harvested annually. The MAPA project is now exploring the possibility of producing essential oil out of oregano leaves, a high-value, relatively stable and non-perishable product.

Nobody would have thought that the quality of life for these isolated farmer families could have so drastically improved in such a short time. However, a carefully selected export crop that can flourish under local conditions, combined with timely technical assistance, have proven otherwise. In the short time that oregano has been produced in the region, it has become the top agricultural commodity, in terms of value, produced in the state of Chuquisaca.

How good is our oregano? The market tells the answer. Our competition's wholesale price is in the range of \$1.60 to \$1.70 per kilo. We sell at \$2.10 per kilo. The first year we exported seven tons of oregano. For 2005 that total will be 125 tons. For 2006, that total should rise another 50 percent.

With oregano, we have an opportunity to discriminate between the business that buys, processes, and sells oregano (UNEC), and the development effort that extends the cultivation of oregano and increases the number of beneficiary families. The business is already functioning as a profitable entity. FDTA-Valles and MAPA 2 can now build on that with development efforts that increase the production of plant material, the number of farmers involved, the land areas under cultivation, and the profitability of the commodity by increasing efficiency. Attention will have to be given to quality assurance programs to make sure that the organic nature of the product, as well as its quality, are perpetuated so as to protect the market niche UNEC has created.

The owner of a small *tienda* in the Chuquisaca region provided a telling commentary of the effect of oregano on the region. She noted that her little store, as well as those of her competitors, are now better stocked than before because local farmers have more money to spend. She said there are more stores and eating establishments than in the pre-oregano days. She personally extends credit in her store only to oregano farmers. She reported that there is a general sense of progress and new hope in the region now that oregano is being grown.

NEW OPPORTUNITIES

MAPA used a three-tiered approach to agricultural development. The bulk of our activities came under the first tier, which was to work with products where we could have high impact on increasing incomes for a large number of farmers within the life span of the project. The work in onions, hot peppers, and others were included in this tier. Work with these crops had to be sufficiently successful to satisfy all the contractual obligations of MAPA. The second tier was to look farther in the future and determine new crops that could have significant benefit for Bolivian farmers in the next 3 to 15 years. The raspberries, blackberries and flowers fell in this group. We started work with the crops, fully realizing that their commercial success would only be realized after the end of MAPA. Yet, we recognized that some of the most important long-term benefits to Bolivia could well result from the work done with these new crops. We have worked with several varieties of flowers, aggressively multiplying plant material. At the end of MAPA, several of them are entering commercial trial stages, including lisianthus and colored cala lilies. Several other varieties are less well advanced, but also represent future opportunity.

The third tier was to look deep into the future and think of what could be of great long-term benefit, but would not even begin to be realized until many years after MAPA had concluded. For this third tier, we introduced pine nuts. The high mountain valleys of Bolivia tend to be deforested, and have poor soils, low rainfall, and weather extremes. These are conditions common to where some varieties of piñon pine trees grow. We introduced pine nuts and began growing them to see if they would respond to the growing conditions. If they do, they could provide a hearty tree for reforestation in the high mountain valleys. The nuts are not very perishable, they have high nutritional value (besides

being delicious), and they have a very high market value. Because they are labor intensive to gather, we believe poor people would do the harvest. The nuts' high nutritive and market value provide a double benefit to the gatherers. We believe these benefits would encourage poor people to allow the trees to grow and not be cut for firewood. The work of MAPA and MAPA 2 will only take this crop as far as validating that it will viably grow under the local conditions, and get the trees placed with organizations that can carry on the work of developing the crop. If our hopes are borne out, the benefits to Bolivia will appear many decades after MAPA and MAPA 2 have concluded. Some have asked why we dedicated effort to something for which we will never get credit. Our answer is that what we have done under MAPA has nothing to do with who gets credit, but how to help Bolivia climb the development ladder. In a hundred years, no one will remember MAPA, but maybe there will be widely recognized, tremendous value in the pine tree forests for their environmental benefits, their nutritional value, and their economic value for poor people. There is no way to fully develop a product like pine nuts within the life span of a normal development project like MAPA. But, if we didn't start the process, who would? If we didn't start it now, when would it happen?

At the outset of MAPA, I had full confidence in the technical ability of the MAPA team, their creativity, and their energy level to be able to meet contractual objectives. With Jorge Calvo's enthusiastic agreement, we undertook these activities in the area we called "new opportunities." We realized that while we had tremendous potential for improving commodities already being produced in Bolivia, the long-term competitiveness of Bolivia would require that new products be added to the agricultural portfolio that are more complicated to produce but that offer higher profit potential. We initiated that process with the "new opportunities" effort. By project end, we were in commercial production of raspberries, as described above. We were also entering small-scale commercial production of the flower lisianthus. We continued in plant material reproduction for colored cala lilies, protea, kangaroo pod, and some others. These will reach commercial trial stage under MAPA 2.

SIMA

The advancement of free trade is an official, long-standing policy of the government of the United States. There are powerful anti-free trade political movements, but their arguments are typically based on ideology and isolated examples of businesses acting badly. The history of developed economies underscores that involving poor people in free trade gives them a powerful tool to overcome poverty. Much of the philosophy behind MAPA is to use the power of the marketplace to lift people out of poverty. Our success is a demonstration that the model works.

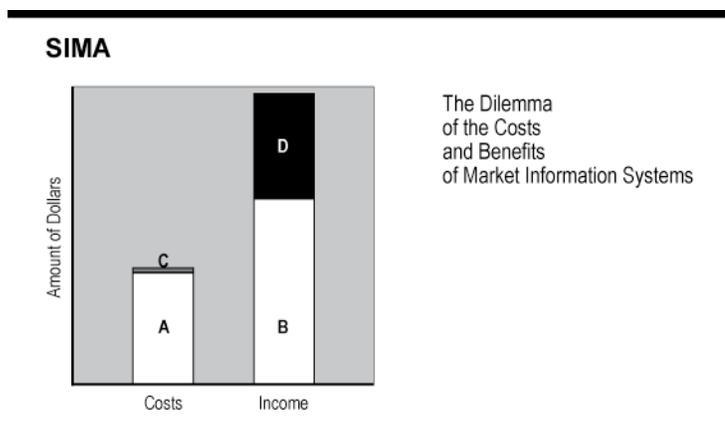
The engine of free trade requires fuel. That fuel is information. The 1995 Nobel prize in economics was given for the calculation of the cost to a free market of not having perfect information. The surprising result of this work was how quickly the cost rises in an economy when information is restricted. It follows that improving access to information, particularly prices, has a very beneficial impact on an economy. MAPA, working with FDTA-Valles, established SIMA (*Servicio Informativo de Mercados Agropecuarios*). SIMA gathers wholesale price information for agricultural commodities in the major wholesale markets of Bolivia and two export markets (Arequipa, Peru and Salta, Argentina). These prices are broadcast that same afternoon and the next morning. The dissemination is by way of a national network of radio stations, and broadcasts are in three languages: Spanish, Quechua, and Aymara.

Market information systems, specifically those that deal with perishable product wholesale prices, have an inherent dilemma in two of their principal objectives. The first objective is to provide information that has the maximum benefit for the economy in making free-market systems function well. The second objective is to have sufficient resources to continue the work. The first objective is best achieved when everyone has the same information at the

same time. That means the information must be distributed for free, to everyone, at once. If the information is sold, then buyers will have a leverageable information advantage in the market. Therein lies the dilemma: to be most valuable in the first objective of maximizing system effectiveness, the system must place the second objective at risk because it cannot gain operating funds through the sale of the information. As a result of this condition, even in developed countries, perishable wholesale market information systems are subsidized.

The chart illustrates the dilemma of financing market information systems. In a national agricultural economy, if the sum of all the costs (A) is less than the sum of all the income (B), then the country has a viable agricultural economy. Suppose we add to the cost column the small amount necessary to pay for a national market information system (C). The area marked “D” represents the considerable increase in income that results because the free market works better. Here is the dilemma:

the costs (C) are paid by the public sector. The income benefits (D) are received by the private sector. Any attempt by the public sector to capture some of the income “D” that gives payers differential access to the information will reduce the potential benefit “D.” The effect is to rapidly reduce the desired effectiveness of the free market.



The decision by the public sector to undertake the cost “C” is based on the expectation that the benefit “D” to the economy is sufficiently large that the payment of taxes on the enlarged economy is greater than the cost of the system. Unfortunately, in developing countries with highly stressed budgets, it is difficult to preserve financing for a market information system in the annual budget. Commonly, what happens is that due to budget cuts, dissemination stops, data-gathering is cut back or stopped, and finally, staff is cut. With the new budget year, the effort is initiated to try to re-create the system. Obviously, this creates a system that is inconsistent, incomplete, and often, incompetent. Usefulness, quality, consistency, and timeliness are all compromised. The benefit to the economy largely disappears under these conditions.

MAPA has addressed these problems by organizing SIMA to be managed by a private foundation (FDTA-Valles) even though it is a public service and is the official national market information system. Secondly, the budget for SIMA is not controlled by the government. In the long term, the only way to ensure that the system is continuous and consistent is to develop an endowment fund that generates sufficient interest to cover the basic operating costs of the system. MAPA 2 will work to seek funding for such an endowment. Finally, under MAPA, we installed the commodity price database: an information management system that is reliable, highly flexible, and efficient.⁸

Early in the project, a conference was held, to which about 20 individuals were invited, representing all the

⁸ In May of 2005, SIMA participated in the meetings of OIMA, which is a hemisphere-wide collaboration open to all countries of the Americas with the objective of improving perishable agricultural market information systems. In that meeting, after the presentation of SIMA regarding the Commodity Price Database, 26 countries approached the SIMA representatives expressing interest in accessing the Commodity Price Database for their own national systems. Under MAPA 2, a concerted effort will be made to allow other countries to use this resource that has been developed through the financial collaboration of USAID and Chemonics International.

organizations known to be working with market information. The intent was to establish systems of cooperation. Unfortunately, there was not much interest, as each organization felt it had to satisfy its own requirements. At the end of the project, most of those organizations had become subscribers to SIMA and no longer attempt to gather information on their own.

SIMA uses contract reporters. These are individuals trained and supervised by SIMA, but they are private contractors. SIMA purchases daily reports from them. At any time, if SIMA determines that the reports are inaccurate or otherwise flawed, it does not purchase the report. The reporter never knows when a SIMA supervisor will follow her in their market to double-check prices. Furthermore, SIMA staff cross-check prices among markets every day. In this way, the reporters realize that the only way they get paid is by providing a quality report. Furthermore, the reporter has every incentive to be efficient, as she (most are women) is not paid by the hour, but by the report.

The mantra of SIMA is that the information must have three characteristics:

- Quality
- Consistency
- Timeliness

A number of large-scale surveys have been conducted as part of the project's monitoring and evaluation process. Included among the questions has been whether or not the respondent listened to the daily SIMA broadcasts. These surveys included people who were not participating in any of the commodity projects. Just over 90 percent of sampled rural residents said that they did listen to the price reports. The follow-up question was if they found the information useful; of those who listened, over 90 percent said it was useful.

While it is difficult to directly measure the effect this information had on income, there are indications of its impact. Within the first three weeks of operation, the major markets began to covary on prices for major commodities more closely than before. Wholesale marketers are very quick to complain when they hear a price they think is inaccurate because of the ramifications for their business. At one point, a newspaper with national circulation asked that we provide a full page of prices and analysis once per week. We started doing that, then one of the paper's owners, who has another business buying and selling produce, ordered the paper to stop the publication. His ability to "manage" his business was compromised by his clients having good market information.

During the last year, the Ministry of Agriculture formally adopted SIMA as the official government market information system.

The computerized data management system was initially the commodity price database (CPD) that was developed using USAID funds in Central America as well as Chemonics' financing. That system was based on the DOS operating system. During the course of MAPA, that system has been migrated to a Windows-based system. During MAPA 2, it will become an Internet-based system that can be accessed for customized reports from anywhere. Within the first year of MAPA 2, SIMA should add data from neighboring countries and USDA data for U.S. markets.

The CPD allows reports to be generated in any currency; it allows prices to be adjusted regardless of the original sale unit; it is flexible enough to facilitate customized market reports or price histories; and it can function in multiple

languages.

As with the earlier version, Chemonics International has invested in the system by paying for the establishment of the Internet server for the CPD so that it can be used by multiple countries, without using USAID/Bolivia funds to do so. This leverages the USAID investment in the system and provides the potential for other USAID missions and projects to benefit from the work done in Bolivia.

For the future, the single most critical challenge will be to establish an endowment fund that perpetuates the funding of SIMA so that momentary political decisions and recurring national budget crises do not interrupt this important service to the Bolivian agricultural community.

FDTA-VALLES

FDTA-Valles has proven itself to be a powerful development engine. Its board of directors is elected by a general assembly that includes public and private sector organizations. By its statutes, eight directors are elected from the private sector and four from the public sector. One of the distinguishing characteristics of FDTA-Valles is that once the directors are elected, they represent FDTA-Valles to the agricultural public and private sector. They do not represent the interests of any specific organization to FDTA-Valles. They serve for three years and can be re-elected. Mr. Willy Soria has served as president from the inception of FDTA-Valles to the present. He is universally respected as knowledgeable, fair, and honest. Much of FDTA-Valles success is attributable to his able leadership. For most of its life, FDTA-Valles has had Mr. Edgar Guardia as its executive director. He is similarly respected and has proven to be progressive, effective, and efficient, and a key factor in FDTA-Valle's success.

FDTA-Valles and MAPA began simultaneously. They have shared the same offices and used staff as one team. One of MAPA's project objectives was to help establish FDTA-Valles and support its institutional development. MAPA has actively participated in this development, and the ramifications described below.

The combined technical teams have been divided up to give leadership responsibility for specific commodity chains to individual technicians. They each receive feedback and assistance from the team as a whole but take the lead in developing and guiding interventions. Generally, they guide the process of developing a project, which includes identifying an intervention; working with potential beneficiary farmers to define and refine the parameters of the intervention; preparing a project description that can be competed among potential implementers; overseeing the project; and conducting monitoring and evaluation of the project. Some projects, particularly those among "new opportunities" required more direct intervention by FDTA-Valles and the MAPA staff, with limited or no contractual implementation.

At the outset of the MAPA project, FDTA-Valles existed in name only. Part of MAPA's contractual obligation was to assist in the establishment of a fully functional organization, including hiring staff, establishing administrative systems, equipping offices, and generating projects. To a large degree, this report is a catalogue of that process. At the close of MAPA, FDTA-Valles was not only fully functional, but was also capturing millions of dollars of project funding on its own. This collaboration will continue under MAPA 2, but as peers.

I suspect that the most significant challenges facing FDTA-Valles in the near future will be the weakness of the national government as a partner. Poverty-reduction development programs require long-range planning and consistency, neither of which has been manifest at the national level during the life of MAPA. If the donor

community and the *prefectures* continue to have faith in the work of FDTA-Valles, then the successes reported here will continue. If they weaken their support as a result of the ever-changing political winds at the national level, then the long-term effectiveness of FDTA-Valles will be compromised.

FDTA-VALLES TRUST

The FDTA-Valles Trust was set up to provide a viable management system for funds provided by donors, in trust, to be implemented using the rules and conditions established by the donor. The Trust has its own set of trustees, who are named by the board of directors. The major donors to the Trust give their “no-objection” to the trustee nominees, or if they choose, the major donors can name some of the trust nominees. The existing trustees accept or reject the nominees. Projects to be financed by the Trust are developed by FDTA-Valles and MAPA staff, evaluated by an external committee, and approved by FDTA-Valles’ board of directors. These approved projects are then submitted to the board of trustees, who answer three questions: 1) Does the proposed project fit within the mission of FDTA-Valles? 2) Does the proposed project satisfy instructions by the donor? 3) Has the process of developing the project been transparent? If they answer yes to all three, they must fund the project. In this way, the trustees do not duplicate or diminish the functions of the board of directors, but they do provide a check-and-balance to the system and ensure that the desires of the donors are complied with.

In addition, the Board of Trustees is responsible for the financial management of Trust resources while they remain in the Trust.

Presently, the Trust oversees several types of funds. Most importantly, it oversees an initial donation of 8.4 million dollars of PL-480 Title III funds placed in the Trust by mutual agreement between the governments of Bolivia and the United States, for use in developing projects. It also oversees funds that have been generated by FDTA-Valles, in a patrimony fund, and funds that have been generated in an endowment fund.

THE VALLEYS FOUNDATION

The Valleys Foundation is a legal foundation in the United States that has 501 (c) 3 status (tax exempt organization) from the IRS. It is a separate foundation with one legal purpose –to support the work of FDTA-Valles in Bolivia. Its board of directors includes the board of trustees of FDTA-Valles Trust, and may have other directors added as needed. It allows the FDTA-Valles Trust to place trust money in The Valleys Foundation, which can then invest the money in U.S. financial instruments without incurring taxes. It can also receive donations, for which donors receive U.S. tax benefits because it is a tax-exempt charitable organization.

PAER

FDTA-Valles was established as part of the SIBTA model. Once established, it became a potential platform for development interventions beyond those financed directly through public sector channels. The government of Denmark competitively awarded FDTA-Valles the implementation of a development effort totaling just over \$1 million known as PAER (*Programa de Apoyo a Empresas Rurales*). MAPA covered most of the operating costs associated with implementing the program.

PAER PROGRAM	
Projects	29
Beneficiaries	2,302
Average income increase by crop	NA
Average household income increase	15%

A total of 29 projects were implemented to support small rural businesses, the average value of which was just under

\$50,000. More than 2,300 families directly benefited, and participants contributed resources totaling about one-third of the donated funds. The projects covered a wide range of activities, and worked with existing small rural enterprises that were processing or marketing agricultural products. The mix of products included onions, table grapes, peaches, garlic, beans, quinoa, camelid fiber, camelid meat, goat milk, and weaving.

The time frame of 15 months was far too short for agricultural projects –which were located in the departments of Oruro, Potosi, and Chuquisaca– although, as a whole, the projects were successful at generating increased income. An important accomplishment was to help all the firms become legally organized businesses. More than half the businesses had women making decisions about operations.

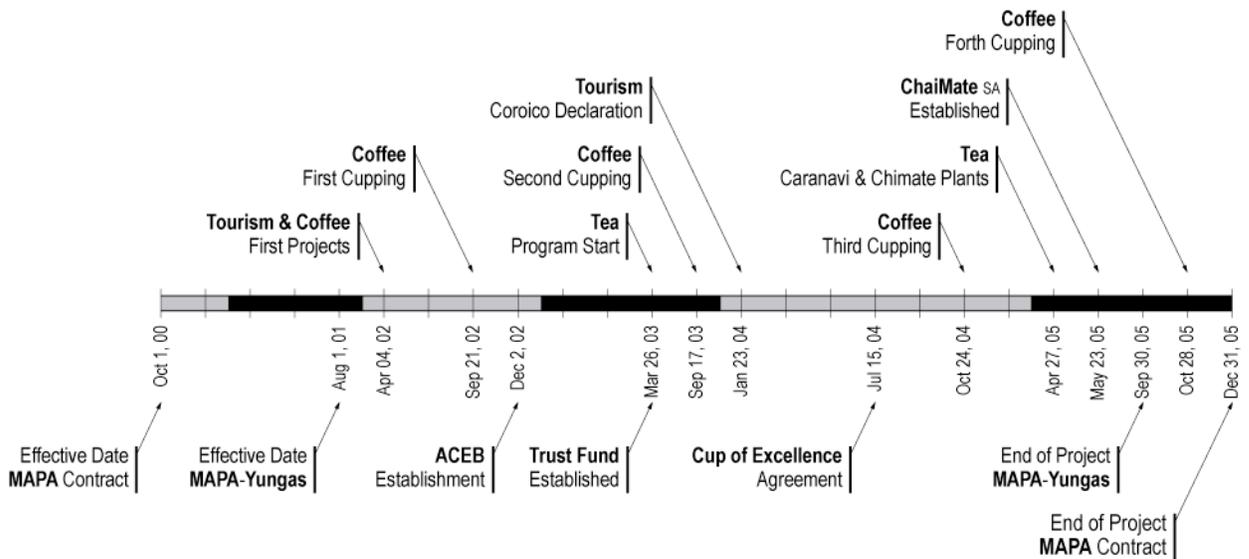
Based on the success of the PAER, the Danish government will implement a follow-on effort to work in similar themes and regions. FDTA-Valles, with the support of USAID, will continue to participate in the effort.

CHAPTER 3

MAPA YUNGAS

TIMELINE

MAPA-Yungas Timeline



THE PHYSICAL AND SOCIAL CONTEXT

THE PHYSICAL CONTEXT

At the outset of the MAPA project, the Mission advised Chemonics that it might decide to expand the contract to include the region known as *Yungas de La Paz*. About two years into the project, they did that. “Yungas” means “foot of the mountains.” It is characterized by dense vegetation and high precipitation, and it includes steep mountain valleys stretching from 15,000-foot passes across the Andes down to the edges of the Amazon basin. Vegetation ranges from high-altitude scrub down through cloud forests into hardwood forests and finally, tropical vegetation at

the lower levels. This region has traditionally supplied the rest of the country with coca and continues to have some legal coca production. It was known as the pharmacy of the Incan empire because of the rich variety of medicinal plants found there.

Transport in the region is precarious. Roads are generally poor and difficult to maintain because of the high rainfall. The “old” road that connects La Paz to Coroico and Caranavi is called by many “the world’s most dangerous road.” While part of that is adventure tourism hype to attract people who ride mountain bikes down the road, it is true that this mostly one-lane mountain road experiences something on the order of 200 deaths per year over a stretch of road that is less than 50 miles. The trip is a breathtaking as it is dangerous. Much of the road was carved from the mountain side by Paraguayan prisoners of war from the Chaco War. It provides a vista of mountain forests, waterfalls –some of which you drive through–, rivers, and a variety of plants that would make a botanist’s head swim. The road has few protections and the tires of trucks and cars are frequently only inches from the road edge with vertical drops of hundreds of feet.

We operated three offices in the Yungas: one in Coroico, the tea plant in Caranavi, and the tea plant in Chimate. The complicated logistics of working in the region can be illustrated by a few examples. During the course of the project we “lost” two vehicles to rivers, and on five occasions our vehicles were among the first on the scene of fatal accidents when buses or trucks fell into the canyon. In the two days it takes to get from Cochabamba to the tea plant in Chimate, it is possible to fly from Bolivia to Washington, D.C. and back. On a few occasions, we were able to shorten the trip by flying into the 700-meter-long grass landing strip in Mapiri, but it still took three hours to travel the last 19 miles to the tea plant.

THE SOCIAL CONTEXT

Aymara cultural remnants are strong in the region, but the tradition of growing coca has been exploited by the illegal drug trade to create social tension. The term “the sacred coca leaf” is often used by organizations to link their traditional use of coca with their desire to be able to grow the plant without restriction. The political and social power of associations and cooperatives is very strong. Their leaders tend to operate at opposite ends of the leadership spectrum. When acting as they choose, they tend to be authoritarian and uncommunicative with their membership. When faced with hard decisions they do not want to make, they claim they must consult with “*las bases*,” which means they consult with the assembly of members. Commonly, newly elected leaders will not recognize decisions that they do not like that were made by their predecessors. This creates a lack of continuity and makes the organizations act irresponsibly. Most of the organizations we dealt with were inefficient and not transparent. Women do not typically have a strong position in these organizations. The mentality is generally self-centered, as reflected by the fact that often the first response to discontent is to blockade the roads with no consideration of the harm that it does to their neighbors. Finally, there is the constant threat of violence. I believe no great harm has come to MAPA staff and projects simply because at the present, military-type firearms are not easily available there.

COMMODITY CHAINS

USAID/Bolivia made several key decisions to guide the work MAPA would do in Yungas. First, it was decided that MAPA would focus efforts in North Yungas, the legal coca-growing region. Second, our primary responsibility would be to raise incomes. Third, our efforts would not be conditionally linked to coca reduction, even though our work was financed by the alternative development budget that is part of the U.S. effort to reduce the production of coca and provide alternative economic opportunities. Our task was to help provide economic outlets for the region as the

interdiction and eradication efforts eliminated the income earned from coca production.

Before we began working in Yungas, we first evaluated areas of possible intervention. The crops of significance in the region include coffee, coca, cacao, citrus, *achiote*, avocados, rice, and in the lower regions, bananas. During the process of evaluating the crops where we could best generate income, I had an interesting conversation with a USAID officer who had just returned from a trip into the Yungas. He was struck by the difficult circumstances of the poor who were farming very small parcels hacked out of the forests on the mountain sides. Some are on slopes so steep it is hard to stand. Some farmers cross the canyons from their farm to the road by sitting in a harness that hangs from a pulley that runs on a wire across the canyon. They pull themselves across the abyss hand over hand. He was glad that the MAPA Yungas activities were about to begin and expressed his hope that we could help these poor farmers to better their very difficult circumstances. I told him that while I sympathized with the unbelievably difficult circumstances of these very poor people, that I had no intention of helping them. He was surprised at my response but understood when I explained that the best use of most of the Yungas was forest. If we were to help these very marginal farmers increase their profitability and make them more effective at exploiting these steep slopes, that in the long run we would simply trade an economic problem for an environmental problem. The best thing we could do would be to create economic opportunities that drew them out of these places where they never should have been trying to farm in the first place. Using that logic, we looked for crops that had high-income potential but that were also environmentally sustainable in the Yungas. The most widely cultivated legal crop is coffee. We also had a world-class coffee expert on our team, Marcos Moreno. That became our first choice for intervention. The second choice was tourism. Though not an agricultural activity, we believed that it was the most interesting economic opportunity for the Coroico region because it could provide increased incomes as well as preserve the environment. Later, tea was added. In the final months of MAPA, we were asked to work in organic banana production.

SPECIALTY COFFEE

At the time we began working in coffee, world prices for coffee were falling, reaching a low in the range of \$0.45 per pound as a glut of cheap Vietnamese coffee flooded the market. For most coffee producing areas of the world, at that price, the return to the farmer was well below his cost of production. This was creating an income crisis in coffee producing areas around the world. On top of this, Bolivian coffee was so bad that it was penalized as much as 25 points below the New York commodity market price. Under these circumstances, Bolivia had developed a unique “captive” market. Its coffee was so bad and sold for such low prices that some of it was sold to the U.S. prison system. That is about as captive a market as there is, but not one to be particularly proud of. Some wondered if we were out of our minds to select coffee for our work under these conditions. As it turns out, it was a great decision. In truth, our decision was not to work in coffee, but to work in “specialty coffee.” High quality coffee is traded in its own market environment and brings prices that are significantly higher than those of regular coffee. We set our sights high, to compete in the stratosphere of the coffee world, but one thing was sure from the outset: no matter what we did, the coffee was not going to get any worse than it already was.

COFFEE PROGRAM	
Projects	16
Beneficiaries	8,491
Average income increase by crop	59%
Average household income increase	25%

Most of the coffee produced in the world comes from lowland Robusta varieties. The very best coffee is of the Arabica varieties, grown at high altitudes. Our team’s coffee expert, Marcos Moreno, recognized that Bolivia has the

“heirloom” Arabica varieties, the altitude and the agro-ecological conditions that should produce very good coffee. In fact, Yungas coffee was potentially not just good coffee, but coffee that could compete with the world’s best specialty coffees. The problem was that from the moment the farmer touched the coffee cherry to harvest it, until it reached the final cup, just about everything that was being done was destroying the quality that nature had originally given the coffee.

Bolivia is the only place in the world we know of where harvested coffee leaves the farm and goes up to reach market. Everywhere else, it leaves the farm and goes down to port to be taken to market. From the Yungas, the coffee must travel up the “world’s most dangerous road” to cross a high pass through the Andes at an altitude of 15,000 feet before it makes it down to a sea port to go to market. The traditional method of coffee processing in Yungas was for the farmer and his family to pick cherry coffee during the day. In the evening and into the night, they would run the cherry coffee through a hand depulper. Typically, the coffee beans were then kept in a wooden trough hollowed out of a log for the fermentation process to remove the mucilage from the bean. The next day, someone had to wash the coffee and start the drying process, while the rest of the family went back out to resume picking cherry coffee. When the beans were partially dry (*café mote*) they would be taken to town, usually Caranavi, and sold to intermediaries who would then transport the coffee up the mountain, where the drying process would be completed and sold in El Alto (13,000 feet elevation) before being bagged and taken to sea port. At one point, we took a photograph of fresh snowfall on top of drying coffee in El Alto. We thought of “snow capped coffee” as a marketing ploy, but realized it would only work for people who enjoyed a good joke more than they minded really bad coffee. The transport of humid coffee across the top of the Andes exposed the beans to dramatic changes in air pressure, relative humidity, and temperature. We think this alpine trek was rupturing membranes in the coffee bean and otherwise violating its integrity and destroying its quality.

By the end of the coffee season, many of the farms left as much as half the coffee on the bushes. That was because of the low prices. It has meant that the coffee was harvested by the “free” labor of the family, or not harvested at all. The concept of hiring pickers is largely foreign to these growers. One grower who tried it complained that after he provided a place for the pickers to sleep and he fed them, on top of that, they also wanted to be paid! That had not been part of his plan.

Most specialty coffee is grown on “estates.” These are coffee farms where the owner has made the total commitment to quality necessary to control all the factors required to produce high quality coffee. The minimum farm size for such an estate to be economically viable is typically between 20 and 30 hectares. Almost all coffee farms in Yungas are under three hectares in size. Furthermore, much of the land is not owned by the farmer, but is assigned to him by his cooperative, association, or community. These factors have both good and bad effects. The bad effects include the fact that the farmer has little incentive to invest in the crop. He has no guarantee that the cooperative might not “reassign” the land to someone else. The coffee prices are so low that there is no money to invest. There is very little technical assistance available to train the farmers in improvements that could be done nor the resources to apply new knowledge if it were available. And finally, it means that coffee was being processed by a plethora of small farmers with no quality control, no consistency, limited agricultural knowledge, and no incentives to improve. Furthermore, the model of farm-level or association-level processing and marketing kept the farmers in a perpetual cash flow deficit. The good effects are that these same conditions mean that almost all the coffee is grown under organic conditions, not because of a conscious decision to do so, but by default. Marcos Moreno observed that in the Yungas there are no real coffee growers, but rather coffee gatherers. They do not typically do anything with the coffee plant other than harvest. Most do not even complete that task, let alone do something as elementary as pruning.

A preponderance of the coffee produced in Yungas was marketed by the associations and cooperatives. This meant that the farmer would hand over his coffee on consignment, perhaps with a small payment up front, but would get the last of his money many months after the harvest. The system has been used to exploit farmers in the most egregious ways. For example, some cooperatives have been able to get price premiums because they have received organic or fair-trade certification. This has allowed the cooperative leaders (*dirigentes*) to abuse the system. In some cases, they will buy coffee from the local wholesale market and sell it with their cooperative's coffee in order to capture the premium from the organic or fair-trade prices for themselves. Last year, a cooperative that produces high-quality coffee produced five container loads of coffee. However, in the market, 12 containers appeared under their name. In other cases, the *dirigentes* buy wholesale coffee and sell it at low prices. They will sell the cooperative's coffee at higher prices. Then, when providing an accounting to the cooperative, they will produce the records of the lower price sales and pay the members accordingly, keeping the high price difference for themselves. The basic problem is that the management systems are not in place to require a transparent accounting, and *dirigentes* are understandably in no hurry to see such systems installed.

In summary, the coffee scene in Yungas has been characterized by rustic, uncontrolled processing; coffee gathering rather than coffee farming; a quality-clobbering mountain climb; and marketing practices contaminated by corruption, abuse, and inefficiency.

We told farmers that we had four objectives in working with them:

1. Help them produce quality coffee,
2. To do it consistently,
3. To do it efficiently,
4. And to improve transparency in the industry.

We were very successful with the first two, made a good start on the third one, and we barely got a foothold on the fourth one, but we devised a model we think will make transparency possible for the future. Without any doubt, the project's biggest failure was that we were unable to install transparent accounting systems in any of the cooperatives and associations with which we worked. To work with us, organizations had to commit to changes that would guarantee transparency. But, in actual implementation, we found ourselves awash in excuses. They wanted our help, so they agreed to our transparency conditions and would therefore never actually say "no" to our proposed efforts to help them be transparent, but getting their compliance was another matter. These organizations are organized for political, social, and economic reasons. The political and social aspects so complicate the organizational environment that business efficiency, effectiveness, and transparency are pretty much impossible to achieve.

In response, the project team devised ways to skirt this resistance by coming up with systems that bypassed these organizations to get more of the income benefits directly to farmers and ensure a transparent process. It was thus possible to work with these organizations without fighting with them over good business practices. Our solution stopped trying to force the square peg of these social-political organizations, into the round hole that is an efficient business.

MAPA developed a straightforward model to overcome these problems and allow Bolivia to compete in the specialty coffee market. It had the following elements:

1. Train farmers to only harvest ripe cherry coffee.
2. Get farmers to sell their cherry coffee to a coffee processor the same day they harvest it. This allows the farmers to get a higher price for their coffee, and get paid the same day. They work less, as they do not have to do any of the processing and drying. This also made it possible to bypass the marketing systems of the cooperatives and associations, with all the transparency problems and delays in payments associated with them.
3. Work with processors to ensure proper processing and the highest levels of quality control. These are formal businesses that have good accounting, and where ethical practices were the norm.
4. Help with the marketing and return the highest possible price to the farmer.

The model has worked beautifully. In a little over three years, the industry went from price penalties to the highest average price per pound ever recorded for the Cup of Excellence Internet auction.

The first two years, we held a home-grown coffee cupping competition that we called “Cupping the Mountain’s Peak.” We invited international cuppers, who were also coffee buyers to come and be judges in the competition. Our intention was to both showcase the farmers and to expose the buyers to the “new” Bolivian specialty coffee, to convince them that we were producing something different from the tongue warping stuff they had previously known as Bolivian coffee. I remember when we first took one of the cuppers out to the growing area that ended up winning our first year’s competition. The farmers insisted on preparing him a cup of coffee. He was not really interested. He knew something of Bolivia’s bad coffee reputation. Imagine someone with a calibrated coffee pallet who had driven for many hours, over the course of two days, traversing roads so bad they made it difficult to decide the most intense center of discomfort, the rump, the kidneys, or the back. The trip would convince any first time visitor that the edge of the world must be very close by. He had arrived at a mountain outpost of primitive huts set among the coffee trees to meet ragged farmers with dirt under their fingernails and each surrounded by the personal aura of a week’s worth of work since the last bath. They offered him a battered mug of unknown cleanliness full of a black brew made from beans of a rustic roast with water taken from a source that was most certainly contaminated. His sense of social responsibility to not offend his hosts won out over his concern for the obvious risks to health and good taste. He accepted the cup, smiled wanly, and politely sipped. He froze in position, widened his eyes then looked down, staring into the cup with a look of total disbelief. His reaction resulted from his utter astonishment at the stunningly exquisite sip of superlative coffee that had just danced across his tongue. I suppose we might have christened this “Cinderella coffee” as it was of surpassing beauty but found in the most unlikely of circumstances.

The coffee experts we brought in those first two years came in large measure because of their sense of social responsibility. They all left with the excitement of a treasure hunter who has just discovered the crown jewels. It is a rare thing to “discover” a new origin of specialty coffee. Their sense of social responsibility was replaced by excitement and a fevered interest in doing business when they left.

The third year, Marcos Moreno was able to convince the prestigious Cup of Excellence program to accept Bolivia as the fifth country to be permitted into their program. This program allows farmers to submit small lots of a few hundred pounds of coffee to the competition. The coffee samples are managed by an auditing firm and assigned numbers so that only the auditors can identify the owner. The coffee enters a national competition that uses a very careful protocol in which a panel of MAPA-trained national judges evaluate the coffees for defects. All samples with defects are eliminated. In the next round, the coffee is evaluated for its quality characteristics and scored accordingly.

The head judge is an experienced cupper who leads the 20 or so cuppers and controls the quality of the process. Only the best quality coffees are allowed to proceed. For the next stage, international cuppers arrive. Each is both a cupper and a buyer. The head judge selected a few of the national judges that, in his opinion, demonstrated international, professional cupper performance in the earlier rounds to participate with the international jury. These were all young adults, sons and daughters of coffee farmers, with a passion to make the coffee industry their career.

For the competition, a detailed protocol is followed. Extreme care is taken to ensure a uniform roast among the samples. Into each cup is weighed a number of beans, measured with a scale that measures out to fractions of a gram. The beans are then individually ground for each cup. There are typically five to six tables prepared. Each table has four judges. Each table has four cups of each coffee sample. The cuppers evaluate the roast and the aroma of the ground coffee. Water is heated just to boiling and is poured into the cups at the same time on each table. The cuppers allow a few minutes for the coffee extraction to occur in the cup and a crust of coffee grounds to form on the surface. Each cupper then uses his/her silver spoon to break the crust and sniff the aromas that are available at that one instant. The grounds are removed and the tasting begins. Each cupper repeatedly cups the different coffees and the different cups of the same coffee. Each is evaluating the coffee for exotic flavor undertones, for body, for mouth-feel, for sweetness, for consistency, and for other qualities. After the coffee cools somewhat, the process is repeated. When the coffee is mostly cold, the process is repeated again. In this way, the cuppers judge how well the coffee holds its characteristics across temperatures. Each cupper scores the coffee on a scale up to 100. The international cuppers come from Europe, Japan, and the United States. Each seeks a unique coffee flavor profile. About the only things they have in common are a superior ability to cup coffee, a deep love of the beverage, and uncommon brutality in their scoring. When these cuppers give an average score of 90 or higher to a coffee, it is something worthy of the nightly news. One cupper described the quality of one such coffee by saying she wanted to “marry it.” Coffees with a score above 90 are sufficiently rare that they are given a special “Presidential Award” for their excellence. This year, six samples achieved that honor. The head judge determines a cut-off score and all samples with scores above that point are anointed Cup of Excellence coffees. Small samples of each Cup of Excellence coffee are then sent to registered coffee buyers all over the world and on a set day, they participate in an Internet auction of these ultra-gourmet coffees.

In 2004, the first year Bolivia participated in the Cup of Excellence, 13 lots qualified for the auction. Two scored over 90. The highest sale was \$11.25 per pound, with an average sale price of \$7.07 per pound. That was the highest average sale price ever recorded for a Cup of Excellence auction. In 2005, 19 lots qualified, and 6 scored over 90. One Cup of Excellence official declared that the winning coffee was the best she had ever tasted. The highest-scoring coffee sold at \$12.55 per pound with the average at \$4.67 across all lots. By way of comparison, when MAPA started working in coffee, some of the farmers were selling their coffee for as little as \$0.10 per pound. The 2005 winner sold his coffee four years earlier for \$0.40 per pound. The average annual income in Yungas is in the range of \$1,800. Each of the winning farmers will multiply that income several-fold. The combined 19 samples of a total of 340 bags were sold for more than \$250,000. While the total volume of coffee sold in the Cup of Excellence auction is small—only a couple of hundred bags—there are also large-scale benefits for Yungas coffee farmers. After the auction, the buyers have to purchase thousands of bags of coffee to fill the containers to make the shipment. Consequently, all that very good coffee that did not make it to the Cup of Excellence stratosphere comes back into play. It is sold at premium prices to the buyers to fill their containers. Furthermore, the competition has put Bolivia on the map, so to speak, in the specialty coffee world and many container loads of coffee are now being sold at premium prices as a result.

But not all of the effects have been positive. Not everyone is happy with these changes. The opposition from the

traditional *dirigentes* has been fierce. They fight the model of the growers selling their coffee directly to the processor. There have been edicts prohibiting growers from participating in the competition or working with MAPA. It has not worked. By the end of the project, about half the coffee producers of Yungas were direct beneficiaries of MAPA coffee projects and many of the rest were adopting our processing model. In 2005, every coffee that qualified for the Cup of Excellence was processed according to the MAPA model. This rapid adoption of the MAPA model has alarmed the *dirigentes* who view this as a threat to their interests. There have been personal threats against us, our offices, and those that work with us. There have been repeated threats against the processing plants and unsuccessful attempts to organize mobs to burn them out. There have been scurrilous letters sent to the President, the minister of agriculture, and the vice-minister of alternative development accusing us of destroying the social fabric and indigenous organization of the Yungas (among other crimes), demanding that we be thrown out of the country, and insisting that the project money be given to local leaders to manage.

Behind all this, and intertwined with it, is the drug market. Those who deal in the cocaine trade do not want farmers to have economic options and freedom. They do not want a government presence in the region or any favorable image of government activities. They want all alternative development activities terminated. During the life of our Yungas work, three alternative development project offices in Caranavi were bombed.

One *dirigente* prohibited members of his association from submitting coffee samples to the competition, but he secretly submitted one himself. Another farmer was so afraid of the threats that he asked one of our staff to come by his farm, in the middle of the night, to pick up his sample. A woman grower, Yolanda Condori, who won sixth place in the first Cup of Excellence, was invited to address the 300 or so growers present to watch the live Internet auction of the first Cup of Excellence. She had just watched her few bags of coffee sold at such a high price that it multiplied her annual income by a factor of five. She looked out at the assembly and told how the community leaders had insisted that she not participate, and that her cooperative leaders had prohibited her from participating. When she did participate anyway, they kicked her out of the cooperative and withdrew her organic certification. She squeezed the microphone, held it close to her mouth, leaned forward, and in a loud voice said: “But I participated anyway, and I WON! I am going to participate again next year, AND I AM GOING TO WIN AGAIN!” True to her promise, in 2005, she again mounted the podium as one of the elite Cup of Excellence winners. When the cooperative she had been a member of learned that cooperatives or associations of winners are entitled to receive ten percent of the sale price, they immediately reversed her expulsion and re-incorporated her into the cooperative. MAPA made sure they did not get the ten percent, but that the amount went directly to Yolanda. They were told they would be eligible to receive that percentage in the future, if they did not expel their members who would become winners in subsequent Cup of Excellence competitions.

This link, forged between farmers and international buyers, runs much deeper than just doing business. At this year’s competition, Yolanda unexpectedly met the representative of the Norwegian company that so changed her life by buying her coffee at last year’s auction. They had not previously met nor had they ever had any contact. They both realized who the other was while they were participating in the business round-table that we held. In astonishment and with great glee, they both jumped up from the table and spontaneously fell into each other’s arms. They hugged, they cried, they laughed, and they chattered in different languages, as if they were long-lost sisters. Yolanda now has a face and a name to keep on the mantle of her commitment to continue producing high-quality coffee. The buyer now has a name and a face and a story to go with her commitment to make her coffee business socially responsible and really change the lives of the poor, as well as to support her commitment to offer her customers extraordinary coffee. As a result of all this, customers in this specialty coffee shop in Norway now ask specifically for a cup of “*Yolanda Coffee*.”

By itself, the MAPA success in specialty coffee in Yungas has been remarkable. This is what can be done when all the conditions come together and the full power of the free market is brought to bear on the problem of poverty, even in unfriendly environments with severe social problems. Of course, many factors have to come together, including a reasonably favorable policy environment, infrastructure, government collaboration, and a USAID Mission with vision, resolve, and resources. What we, as MAPA, added was a team, including our USAID counterparts, with a coherent vision, technical expertise, tenacity to stay the course, high energy, creativity, and teamwork. I hope USAID will track the future progress of the specialty coffee market of Bolivia. It can always take credit for being the main reason it exists.

There is another story to be told, given the overt and severe opposition to MAPA and our partners as we worked in specialty coffee. Marcos Moreno convinced a few businessmen in the coffee industry to work with us in Yungas. This is a tribute to the trust they had in Marcos and the MAPA program as well as their personal integrity and commitment to helping their country. The one person in particular to highlight is Pedro Rodriguez. We convinced him to work with us in Yungas and to build a processing plant in Caranavi, with MAPA's help. He made a significant personal investment to do so. From the moment it was known he was setting up a business, local radicals began a campaign to destroy it. They characterized him and the plant as "private sector," which, as they described it, means something that is irredeemably bad. They said he was a liar, that he would cheat the farmers, destroy their social structure, and rob them of their "right" to grow the "sacred leaf of the coca plant." He shared with us in the serious personal threats, and his personal capital was constantly at risk in this tenuous environment.

When we first started, Pedro rented a coffee processing plant while his was built. He was briefly shut down because of unfounded complaints of environmental contamination. Coffee plants run at night. There were efforts to shut him down because of the noise, even though the site he was using at that time had been a processing plant, operating at night, for years. In fact, one of the people trying to shut him down was the person who formerly operated the plant at that site and who was renting the facility to Pedro.

When Pedro began operations at his new plant, he had serious problems with his neighbors. The public water main ran across his property. His neighbors insisted to the municipality that he not be allowed to use any water. He had to go up the mountain and develop his own water supply, at substantial cost.

Pedro trusted us and followed our advice to pay farmers a higher price for their coffee than they could get anywhere else in Caranavi, but to only purchase coffee that had been harvested with the strictest standards. As a result, he began attracting some of the best coffee to his plant. He paid cash when the coffee was delivered. In contrast, cooperatives typically make final payments to their members up to a year after the coffee is delivered. To his neighbors who would not let him use the water, he offered free use of the surplus water from the source he had paid to develop. He gave away the cherry coffee pulp to his neighbors, who then dried and sold it as *sultana*, for making a kind of tea drink. He instituted a scholarship program and sends two local students away for higher education every year. He hired and trained local youths in the coffee industry. But here is the extraordinary thing. All of the coffee going through his plant, he has purchased from the farmers. The coffee belongs to him. Every batch of coffee is registered as to the purchase date, type of processing, and the farmers who sold it to him. He and his staff cup every batch. When they find a batch that is particularly good and they think it may qualify for the Cup of Excellence, he advises the farmer. He gives the farmer as many sacks as are required to participate in the auction, and the farmer then registers the coffee in the competition as his own. If the coffee makes it to the Cup of Excellence and is sold at auction, the farmer gets all the proceeds. In other words, Pedro paid top dollar to the farmer for the coffee, then gave it back to the farmer so he

could compete in the Cup of Excellence and receive the windfall that might come from the auction. Essentially, the farmer gets to sell the same coffee twice.

Pedro is in business. You might ask how he can benefit by buying coffee, paying to process it, and then taking the best-of-the-best and giving it back to the farmer without charge. Here is how he combines good business with being a good neighbor. Typically, the lot from which the coffee is taken to give back to the farmer is larger than the number of sacks Pedro donates to the farmer. If the farmer wins a spot in the Cup of Excellence and the coffee is sold at auction, Pedro can go to the buyers and say: “Ahem, I happen to have more bags of that winning coffee for sale.” It so happened that several of the Cup of Excellence winners this year, including the number one coffee, were processed by Pedro and donated back to the farmers, with the farmers thereby making very large profits. A great deal of our rapid success in the specialty coffee program in Yungas has been due to Pedro Rodriguez. He was the first large-scale entrepreneur we convinced to work with us in Yungas. He has lived the old adage: “The pioneers catch all the arrows.” He has been willing to take very great personal and economic risks and has refused to react to bad treatment in kind. He is a true Bolivian patriot and an exemplary human being. He has established ethical business practices that are now being followed by other entrepreneurs investing in coffee in Yungas.

TOURISM

The Yungas is comprised mainly of steep mountain valleys. The single best use of the zone is forest. In the northern section of Yungas, around the community of Coroico, we selected tourism as our targeted intervention. This community is perched on a mountain ridge and overlooks an intersecting set of forested canyons that provide a breathtaking vista.

While tourism is not an agricultural activity, our intention was to work in something that could significantly benefit the local economy and support preservation of the forest environment. The selection of tourism involved an interesting and very important exchange among MAPA, USAID, and the government of Bolivia. MAPA had a contractual responsibility to reduce poverty by measurably increasing incomes. We could certainly do that in the Coroico region. However, we argued that increasing tourist visits in Coroico would degrade the community and its long-term tourist potential. The problem was that the community’s infrastructure was not capable of supporting the demands of a significantly increased tourist flow. There was no urban planning. The water system, sewer system, storm drains, and solid waste management were all inadequate. Security, communications, and other support structures were not up to the task either. In a meeting with high government and Mission officials, we discussed the issues. The dilemma was that we could do the most good by helping the community upgrade its infrastructure, but that would not translate into a measurable increase in income as our contract required. It would have to be taken as an article of faith that if we improved the community’s ability to support the tourist trade through improved planning and infrastructure, incomes would rise in the long run, and it would be more sustainable than if we just tried to increase the number of tourist days. It was agreed that this was a sensible decision.

Coroico is a traditional coca-growing region and actually has a legal allocation of coca that can be produced for national use. Coca leaves are chewed as a stimulant, much as the rest of the world drinks coffee or cola drinks. Unfortunately, the coca grown in this legal zone exceeds the capacity of consumption for traditional uses. This creates cultural and political tension between people of the Yungas and the national government that tries to stem the flow of

TOURISM PROGRAM	
Projects	7
Beneficiaries	12,237
Average income increase by crop	N/A
Average household income increase	N/A

coca leaves into the cocaine trade. Our first meeting in Coroico was about as tense as a meeting can be without turning violent. The first words out of my mouth were to specifically state that the MAPA project was funded by alternative development (AD), but that we did not have a responsibility to link our economic assistance to coca reduction. That evening, the local radio station described the meeting in part by saying that they had “forced” me to admit that this was an AD-financed activity. Our intention was to begin working with the community so that they, not we, defined the major needs to better prepare the community to become a desirable tourist destination. Perhaps the smartest thing we did was hire Marcelo Levy to operate our office in Coroico. He is one of those rare persons who lets insults and slights slide, and who insists on being friends with everyone. Thanks to him, in a short time, local leaders began to realize that MAPA really was there to assist them.

Together, we developed a list of 10 priorities. These included things like a new bus terminal, a solid waste management system, a water system, a wastewater management system, a zoning plan, a re-design of transport routes, and so forth.

Over time, the partnership we developed with Coroico was remarkable. In my mind, without any doubt, in all the places MAPA worked, Coroico manifests the most profound cultural change. The attitude of the community changed from having a coca-chip-on-the-shoulder to one of a community with a broad base of support that was aggressively pursuing the objective of becoming an attractive and tourist-friendly destination. A laundry list of things accomplished during MAPA’s collaboration with the community include:

- A zoning plan developed and put into operation.
- Initial plans developed for all 10 community priorities.
- MAPA did not have the funding to do large infrastructure projects, so we worked with ACIDI/VOCA, which had USAID funding to initiate and implement a solid waste management system, including a sanitary landfill.
- We also coordinated with ACIDI/VOCA to complete a final design and construct a new bus terminal to serve the community.
- We worked with the Department of Architecture of the Catholic University of La Paz. Last year, students were invited to participate in a contest to design tourist-promotion structures for the community. The community then voted on which ones it liked the best. Two of the winners were scenic overlooks. We built them both.
- We supported the start of a scout troop in Coroico. This has had great benefits in terms of the attitude of youth toward litter, community clean-up, and so forth. It has also fostered a community-wide consciousness toward tourism and environmental friendly activities.
- We provide support to the local radio station, which has helped spread the growing progressive attitude of the community.
- We took local public and private leaders on two trips, one of them to Bella Vista in the department of Santa Cruz. This is another community aggressively working to develop a tourism industry. The other trip was to Antigua, Guatemala. We also brought back one of the Antigua city planners to provide ideas for Coroico. Both visits, especially the Antigua visit, were eye-openers. As a result, Coroico founded its own tourism development board, which has continued to actively promote tourism in the community.

- We backed the renovation of the center of town, around the central plaza. We bought the paint and the community provided the labor. We had one of our standout student architects guide the choice of colors and combinations.
- One of the most important things we did was hire Fernando Peñaranda to help get Coroico officially designated as a tourist destination by the national government. No community had ever before gained such a designation, although it opens up many options for the financing of infrastructure projects. Fernando found his way through the poorly defined process and documented the process for other communities to follow in the future. The process took over a year of insistent effort. The designation was finally achieved and presented to Coroico in a community-wide celebration. With this, the stage was set for the follow-on ARCo project to help Coroico pursue funding sources for the additional infrastructure it needs.
- We worked with PDAR to put up an attractive sign that announces arrival in Coroico, the first official national tourist destination. It is a beautifully carved, roof-covered sign set on a stone base that has become perhaps the single-most photographed tourist spot in the community.
- As part of the zoning plan, businesses are now changing their helter-skelter business signs for carved wood signs set flush against the buildings. They give the community a sense of artistic continuity.
- We put up ceramic street signs that identified streets and gave a little history on the person for whom the street had been named.
- We remodeled an office and put in basic furniture for the community development committee. It is used by both ASITUR and COMOTUR.

Three years ago, we held the coffee cupping competition in Coroico. Radical leaders began to put up road blockades at exactly the time we had about 25 international coffee cuppers in Coroico for the competition. As a result of MAPA's work to make Coroico a tourist destination, local leaders, who used to automatically support such blockades, told us they intended to keep these political machinations from hurting the cupping event. True to their word, they embarked on a series of negotiations that delayed the advance of the roadblocks long enough for us to conclude the event and get everyone across the mountains and back to La Paz using the only road out.

One of those leaders is now the mayor of Coroico, and others are in important community positions. In our discussions with them, they noted that one of their problems is that when peasants come to town for meetings or other activities, there is no place for them to stay. They sleep in the central plaza and on the church steps, because they cannot afford the hotels. We responded to that need by hiring one of the student architects to design an *albergue*, or hostel-type dormitory that could be used by the rural poor when they come to town. That facility was being completed at the end of MAPA. It is probably the single most important symbol of the new collaboration between the community, the government, and the AD programs. Although we cannot measure income change for all the activities we have undertaken in Coroico, in my estimation, it is in Coroico where we have had the most profound impact in terms of changing worldviews. They are now outward-oriented, whereas before they were inward. They are now collaborative instead of confrontational. They see business as partner, whereas before, the private sector was the adversary.

TEA

A number of years ago, tea was introduced into the Yungas. It was an artisan industry until the government of Taiwan, with assistance from USAID, provided the government of Bolivia with tea processing plants and helped develop a more modern tea industry. The tea plants were sold as part of the government's privatization decision. Separate

companies purchased the tea plants in Chimate and Caranavi. These businesses quickly became unprofitable.

Bolivians drink a lot of tea, some 600 tons per year. However, it is a market governed by price, not by quality. Misiones, Argentina, is a major tea-producing area. It lies at a low altitude, it is flat, and it is mechanized. In Yungas, there are hills and valleys, the altitude is high, and tea must be worked by hand. Refuse from the tea-making process in Argentina was being brought into Bolivia illegally, mixed with colorants and flavors and sold very cheaply as tea. This caused the wholesale price of tea in Bolivia to hover around \$1.00 per kilo. The cost of producing the tea in the Bolivia plants hovered around \$2.50 per kilo. When MAPA initiated tea activities, one tea plant was already closed and the other was processing a few kilos of tea, for a few hours, every two weeks or so.

There were an estimated 400 hectares of tea plantations in the hands of very small farmers, for which there was no longer a tea buyer. The cultivation of tea is almost identical to the cultivation of coca. Both involve planting bushes from which one periodically harvests leaves. The government of Bolivia and the USAID AD program realized that if something was not done very quickly, this acreage of tea would be a prime candidate to become acreage of coca. They asked MAPA to fix it.

The foregoing description does not give the human dimension that the failure of the tea industry had on people's lives. The Chimate plant closing, in particular, was a terrible blow to the local economy. This area is so remote that if the weather is good, it takes two days to get there from La Paz.⁹ The closing of the tea plants probably reduced the average family income in the region by more than 50 percent. The sense of economic desperation was palpable. In increasing numbers, family members were forced to go to El Alto to try and find work, any work, to be able to send support to the family. More people were turning to gold mining, with the attendant deaths and injuries of that occupation. The availability of health care, education, good nutrition, and other basic needs had essentially disappeared. One of the most personally touching moments during the project was when I went to Chimate at the outset of our rehabilitation effort and a group of local residents arrived at the plant carrying a large handmade sign welcoming us and calling MAPA the "hope" of the region. That wasn't rhetoric, it was real, and it certainly deepened our commitment to make sure the effort was success.

The first task was to evaluate the industry. It made no sense for us to bring to bear the considerable effort of the GOB and USAID if, in the end, we would still have an economically unsound business. We realized that if we wanted

TEA PROGRAM	
Projects	2
Beneficiaries	465
Average income increase by crop	42%
Average household income increase	9%

⁹ Over lunch in the USAID cafeteria, I asked the deputy director the following question: "Suppose USAID Washington had some sort of project that they wanted to tack onto MAPA and have me travel back and forth between Washington and Bolivia to manage it. Would USAID/Bolivia accept such a situation?" He chuckled at the obviously ludicrous suggestion and said that the Mission would never accept something that was so clearly inefficient, involved too much travel, and would be too costly. I then asked him: "Do you realize that I can travel from Bolivia to Washington and back to Bolivia again in less time than it takes me to make a one-way trip from Cochabamba to Chimate?" Of course I was neither suggesting a change nor complaining about doing this fascinating work. My point was that not many understand what a large logistical and management task it has been to carry out the mission we were given in rescuing the tea industry.

to succeed, we needed a plan that would allow us to compete in the Bolivia market. To become profitable, the plants had to be operating at capacity. That meant MAPA had to increase the acreage of tea plantings, increase the density and productivity of plantings, and aggressively work to capitalize on the quality potential of the region. The same factors that make the Yungas an ideal agro-ecological location for high-quality coffee are those that make it a great place to grow high-quality tea.

Normally under these circumstances, we would look for a business we could assist to make the industry renovation work. However, we had no one to work with. The only businesses that had experience in the industry had failed. In one case, the business had no desire to work with us as the economic finger-burning they had already experienced was lesson enough for them. The other company, for various reasons, was not deemed to have the capacity to do the work we had charted out. So, we devised a system of a grant to the FDTA-TH Trust to oversee the work, with three of the five trustees being MAPA staff. The first thing we had to do was purchase the tea plants.¹⁰ The peculiar and innovative system we worked out is described in the section on Trusts.

We embarked on an aggressive campaign that had three elements:

1. Buy, process, and sell tea, now. Give farmers an immediate market for their product. Samples from our very first batch were sent to the two companies that had previously owned the plants. They declared that our first effort was better than what they had produced at the plants. Though we still had much to learn and many refinements to make, this initial confirmation of quality was basically due to the reduced time between picking the leaves and starting the processing.
2. Rehabilitate and modernize the installations and the industrial processes.
3. Rehabilitate the tea plantations and start the process of increasing acreages and plant densities, raising productivity, and training growers in proper harvest practices.

Our plan had two major divisions: One was the tea business (buy, process, and sell tea), and the other, the development part, was working with farmers to increase acreage, density, and productivity. Our three-year plan was to have the tea business side hit the break even point. The development part is probably an 8 to 10-year effort. At the close of MAPA, we were two years into the process. We were close to being on track to reach the break-even point, but not the way we had planned. We were significantly behind on the tea volumes being produced, but significantly ahead in our marketing program. We were selling both black and green tea at prices above our minimum target of \$1.00 per kilo. Black tea was going for \$1.40 and green tea sold at \$4.50 per kilo.

The figures presented on the total value of income generated by the end of the project are not very high. That is because, as with raspberries, we were starting pretty much from zero. In commodities like coffee and onions, we made

¹⁰ In the case of the Caranavi plant, the process was relatively easy, taking only months. We faced all the usual problems of unpaid property taxes and normalizing all the legal documents. In the case of Chimate, the process has proved to be quite normal, meaning, as of this writing it is still not finished. When the plant was privatized, the government committed a couple of errors. The plant lies on a five-hectare parcel bounded by a river and roads. The person who prepared the documents appears to have thought the surface area of the buildings was the entire size of the lot transferred with the sale. That is about one-seventh of the actual lot size. That error means if you step outside one of the plant buildings, you are on public land. The other error was that in the *minuta* of the sale, the figure of land assigned to the transfer was 160 hectares. We had to sue the government to get them to take back the 160 hectares. Then we had to open a formal process to request that the five-hectare lot be legally assigned to the original owner so we can complete the purchase. The original owner actually has a constitutional right to the land. However, getting this all straightened out is the political equivalent of Abbott and Costello's famous "Who's on First" skit. Every few months, just as we are promised that the process is all but done, everything starts over from zero. It is far too much to report here, but suffice it to say that this is a graphic demonstration of one of Bolivia's most serious development constraints: its inability to reasonably manage the process of legalizing property titles. It is not just. It is not efficient. It is not transparent.

modifications to existing industries that greatly improved their profitability. The tea rehabilitation was a boot-strap operation. There was no industry to improve, but rather an industry to be created. When we came on board, the total Yungas commercial tea output was in the range of three tons per year. This year, we will produce more than 100 tons. The income impact in the region is on a steep upward curve and will show significant improvements under the ARCo project that has taken over MAPA's efforts.

At the end of MAPA we had a number of exciting possibilities underway or completed. They included:

- We had “invented” a green tea processing machine. I say “we,” but the credit goes to Werner Munckel who worked for MAPA, who happens to be an engineering whiz. The day we turned on the first machine and processed the first batch (the machine worked the first time it was turned on) there were two buyers from mainland China present. They cupped the first batch and announced that they wanted to buy every gram of green tea we could produce to take to China at \$4.50 per kilo. Taking tea to China is a little like taking ice to Alaska. We were surprised and gratified to see that we were on track to produce a highly marketable green tea product line.
- Werner also invented new tea wilters for us. The “Munckel” wilters are easier to operate and are more efficient than the commercial wilters that were originally installed.
- We helped women in the region form their own businesses to harvest tea. We contracted these businesses to harvest tea for us. The tea they harvest is of much better quality and consistency than what we get if male farmers harvest their own tea. The problem is that the men will harvest more leaves than they should in order to increase the volume, but it reduces the quality. In some instances, we insisted that we would only buy tea from a farmer if these women harvested the tea.
- To support these women-harvesting businesses, we built a nursery where their children could be cared for while they were in the fields. The nursery has sanitation and kitchen facilities and is, by far, the most modern building in the community.
- We completed the remodeling of the tea plants.
- We organized and established ChaiMate S.A.¹¹ This is the tea business. It is jointly owned by FDTA-TH (main partner) and tea growers.
- We established a program of tea propagation. At the end of MAPA, we had more than 300,000 tea plants in nursery care to plant on 20 hectares. They have to grow for a year before they can be transplanted to the field.
- We established a program of propagating jasmine and planted all the available area at the Caranavi plant in jasmine. The original jasmine plants were brought from China and are used as an aromatic with green tea to create a higher-value product. At project close, additional plants were being prepared for the Chimate plant grounds.
- We were establishing an organic fertilization program to improve productivity.
- We were working on organic certification for the tea production.

¹¹ The name “Chimate” was the invention of our administrator, Sallie Lacy. “Chai,” means “tea” in several languages. “Mate” also means tea or tea mixture in Spanish; in Quechua, “Chay” means “that,” so “ChaiMate” means “that tea.” Furthermore, the main tea-growing area for MAPA is called “Chimate.” The locals identified so quickly with the business that some of them have taken to calling the area “Chimate” instead of “Chimate.”

- We had an active extension program, including demonstration farms, that taught farmers good cultural practices, and harvest and post-harvest management.
- The tea plant in Caranavi has an athletic court where soccer, volleyball, and basketball can be played. We have successfully promoted it to become a center for community activities.
- The tea plant in Caranavi holds an annual art competition among all the local schools. The children submit drawings under the subject of “My Beloved Caranavi.” The drawings generally have an environmental message. Local leaders are selected to judge the drawings and select winners. The winners are invited to paint their winning submissions on the front wall of the tea plant, facing the street. This gives the children community recognition, establishes a community-environment consciousness, and keeps political graffiti off the tea plant walls.

To date, the tea program has been high-cost and low-return, but that is what we expected at this point in the process. The work is on track to register significant income increases for farmers. It is an economic lighthouse in the region, transforming the lives of poor farmers, particularly in the area of Chimate.

BANANA

Our work in organic banana production was only for the final months of the project. The Mission asked us to get involved as a way of keeping the activity moving until the new ARCo project could begin. Fortunately, one of our staff members, Enrique Rivas, is a banana expert, having been one of the founders of what is now Bolivia’s largest banana-exporting company . Our assistance was both financial and technical. We worked with 275 families who were cultivating 216 hectares of organic bananas. During the period of our assistance, they sold 37,000 boxes for a gross return of 723,000 bolivianos. We provided assistance in writing the statutes and regulations for the company, and we helped them install modern accounting and administrative systems.

We also helped them with technical aspects of the business in terms of planning, proper packaging, and most importantly, marketing. The effort was turned over to the ARCo project as soon as that project got underway.

CHAPTER 4

TRUSTS

This chapter describes MAPA’s innovative use of trusts as a transparent and efficient way to manage donor funds, in accordance with USAID guidelines, as an alternative mechanism to direct beneficiary management via cooperatives and grower associations while allowing the latter to continue functioning as social and political organizations.

The concept of a trust is that one entity manages a resource that is owned by another entity. In Bolivia, the law regarding trusts is very narrow –only banks can manage trusts. However, we use the term “trust” in its generic sense, not in the Bolivian legal sense. During the MAPA project, we formed two trusts, in FDTA-Valles and later with FDTA-TH.

The need for a trust initially arose from the fact that USAID had agreed with the GOB, before the beginning of the MAPA project, to set aside just over \$8 million in PL-480 funds to finance projects in the Valles region. We needed a mechanism to receive these funds and manage them during the time that projects were generated. We decided to use a trust. Following are the steps taken:

- The board of directors authorized the formation of the FDTA-Valles Trust with its operating procedures.
- The board of directors ceded authority to the board of trustees to manage all resources assigned to the trust in terms of their investment and in terms of releasing funds for approved projects. This independence allowed the board of trustees to act as a check-and-balance to the board of directors and assured transparency.
- These rules were adopted regarding the trustees
 - The president of the board of trustees is the president of FDTA-Valles.
 - One trustee is named by the minister of agriculture.
 - Three to five additional trustees are named by the board of directors and may not be directors or staff of FDTA-Valles. All major donors to the Trust may give their “no-objection” if they choose to participate. All trustees must be accepted by the existing trustees.
 - All trustees serve *ad-honorem*.
 - The secretary to the board is the executive director of FDTA-Valles.

The trust cannot use the assets of the trust for any purpose other than to invest the resources and to release the resources to FDTA-Valles as appropriate. When the FDTA-Valles board of directors requests trust resources, the

board of trustees asks:

- Does the plan or request fit within the mandate of FDTA-Valles?
- Does the plan or request represent a reasonable and prudent use of the trust funds and fit within the expectations and instructions of the donor?
- Does the plan or request meet the tests of transparency, reasonableness, consistency and coherency as judged by a rational, prudent, and reasonable person who is a non-technician and is independent from FDTA-Valles?

With this structure in place, USAID and the GOB transferred the PL-480 funds to FDTA-Valles Trust. Ownership of the funds in the trust remain with USAID and the GOB and are designated as the GOB counterpart contribution to MAPA projects. The funds are managed by the trust, for use by FDTA-Valles and the MAPA project for purposes of the MAPA project. The trust first invested the funds with *Corporación Andina de Fomento* (CAF), because it was a legal organization in Bolivia that could invest internationally. It was a politically wise choice, but turned out to be financially disadvantageous. The trust withdrew the funds after a year, as the net earnings from the CAF, after fees, was less than 1 percent. The funds were then invested with Merrill Lynch, where earnings increased to about 8 percent of capital the first year.

Parallel with that investment with Merrill Lynch, MAPA and FDTA-Valles began creating a foundation in the United States called “The Valleys Foundation.” The year-long project made The Valleys Foundation a 501(c)(3) organization, meaning that it was tax-exempt and that donations from U.S. sources would be tax-deductible by the donor. The trust then transferred the trust assets to The Valleys Foundation so that earnings would be tax-free. The sole purpose, legally defined, of The Valleys Foundation is to support the activities of FDTA-Valles. The board of trustees of The Valleys Foundation consists of the same trustees as the FDTA-Valles Trust, with the option of adding other trustees for the purpose of obtaining donations.

When project funds are required by FDTA-Valles, it follows the operating procedures for the Competitive Fund for Innovation (CFI), with the board of trustees exercising the role of donor, including a no-objection by USAID for the projects under consideration.

The trust has functioned well. Because the trust functions in the SIBTA system using the CFI operating procedures and filling the same role as a donor or that of Coordination Unit for the Agricultural Services Program (UCPSA), a comparison is revealing:

- Time required to approve projects: Trust 36 days; UCPSA 104 days. The figure for the trust is typical. The UCPSA figure is not typical. It is the least number of days it has taken to approve a project. The longest was well over one year.
- Cost per year: Trust, perhaps as much as \$1,000, for quarterly meetings; UCPSA, several hundred thousand dollars per year.
- After projects are approved: The trust transfers the funds to FDTA-Valles. The foundation then has the authority, responsibility and resources to execute the project. UCPSA transfers FOCAS funds, but not IDB funds. The foundation is responsible for the project, but most of the funds and authority are retained by UCPSA.

Starting with FDTA-Valles and later with FDTA-TH, trusts were formed. Although the trusts do not fall under the

legal definition of a trust in Bolivia, that did not present a problem because the trusts were formed to operate as they might in other countries, with the following characteristics:

- They are owned by the FDTA and exist only to support the objectives of the FDTA.
- There is a financial barrier between the FDTA and its trust. The FDTA cedes resources to the trust and the authorization to operate independently from the FDTA in the management of those resources, but the resources are managed with the sole objective of supporting the FDTA purposes.
- The trust is managed so as to ensure transparency and efficiency to the donors of funds.

The original purpose of the FDTA-Valles Trust was to provide a transparent and efficient way to manage the PL-480 funds according to USAID guidelines. We found that a trust was more useful and powerful than we had envisioned.

As noted elsewhere in this report, we faced a dilemma in creating sustainable development. The design of SIBTA mandates that direct beneficiaries must pay a minimum of 15 percent of the value of the project that assists them. When a contract is signed for a project, someone has to sign on behalf of all beneficiaries, accepting that financial obligation. As a result, projects are typically developed with associations or cooperatives of growers.

As already noted, cooperatives and associations that we worked with had usually been formed as social or political organizations, not businesses. They suffered from two flaws:

- They are inefficient, in terms of operating like a business.
- They are often not transparent.

Sustainable development means establishing viable, profitable business sectors. After several years of work, it had become clear that cooperatives and associations were not the best mechanism for creating sustainable development. After discussions with USAID, we devised an alternative system that has served us better.

Recall that the two primary characteristics built into the trusts were efficiency and transparency. In other words, the trusts offered a mechanism to induce the transparency and efficiency into the development process that was lacking as we worked with associations and cooperatives. The solution we devised was to use the trusts to help us establish businesses that could involve the cooperatives and associations, but would allow them to continue functioning as social and political organizations. The trust would permit us to do this while ensuring that efficiency and transparency were built into the process.

As we worked on establishing this structure, we found we had created a mechanism that allowed us to re-cycle our development funds multiple times. The best way to explain this is to describe the process associated with one of the trusts. As it was the most advanced case by the end of MAPA, I will describe how we used the trust to help us revitalize the tea industry in Yungas.

The figure shows the agreements and the flow of resources in this process. The figure is divided into seven time periods. They are not distinct time periods as several are in operation at once, but describing them separately simplifies the presentation.

USAID had given MAPA a difficult conundrum. We were instructed to revitalize the tea industry in Yungas. This consisted of two tea processing plants, owned by two companies, and about 300 hectares of tea plantations, owned by

private farmers, that were not in production. One plant was closed; the other was operating half a day every other week. The funds available in the MAPA contract for this work were earmarked as funds for grants or subcontracts. These funds could not be directly used by the Chemonics' team, but had to be used inside a grant or subcontract. Normally, we would have contracted with a qualified entity to do the work. However, in this case, the only two businesses that were involved in tea in Yungas had failed to make the businesses work.

Before we embarked on revitalizing the tea industry, we addressed three issues:

1. Why had the tea industry failed in the first place? Why was the private sector unable to make this business profitable? We realized we had to understand in detail the issues surrounding this failure, or we could not decide whether it made sense for us to try to make the industry viable. The answer to this question was that cheap, contraband tea from Argentina was sold in Bolivia for about \$1 per kilo, wholesale, while the cost per kilo from the Yungas plants was in the range of \$2.30 per kilo. Argentina tea production is mechanized. In the hills of Yungas, tea is necessarily harvested by hand. Argentine plants run at high capacity. Yungas tea plants operated at very low capacity.
2. What was there about the MAPA project that could neutralize the problems that had caused the private sector to fail? After understanding the reasons the private sector had failed, we had to be able to identify what we could do that the private sector could not that would make a difference. The answer was two fold. First, we would have to increase the tea plantation plant densities, the productivity, and increase the acreage. Second, we would have to market the higher quality Bolivian tea to buyers that would pay the price difference for better quality tea. The project could cover these development costs, whereas the private sector could not.
3. How could we devise a business plan that used the strengths of MAPA, avoid the problems that had caused the private sector to fail, and chart a clear course to profitability that would allow the revitalized industry to continue after project resources were withdrawn? The basic strengths of MAPA were money, technical expertise, and energy. We aggressively applied these to make the needed improvements to plant infrastructure, farmer capacity, the agronomics of tea production, and marketing. One Kenyan tea consultant said it takes 25 years to establish a profitable tea industry. Our plan was to hit breakeven in 3 years. By the end of MAPA, we were still on track to meet that objectives.

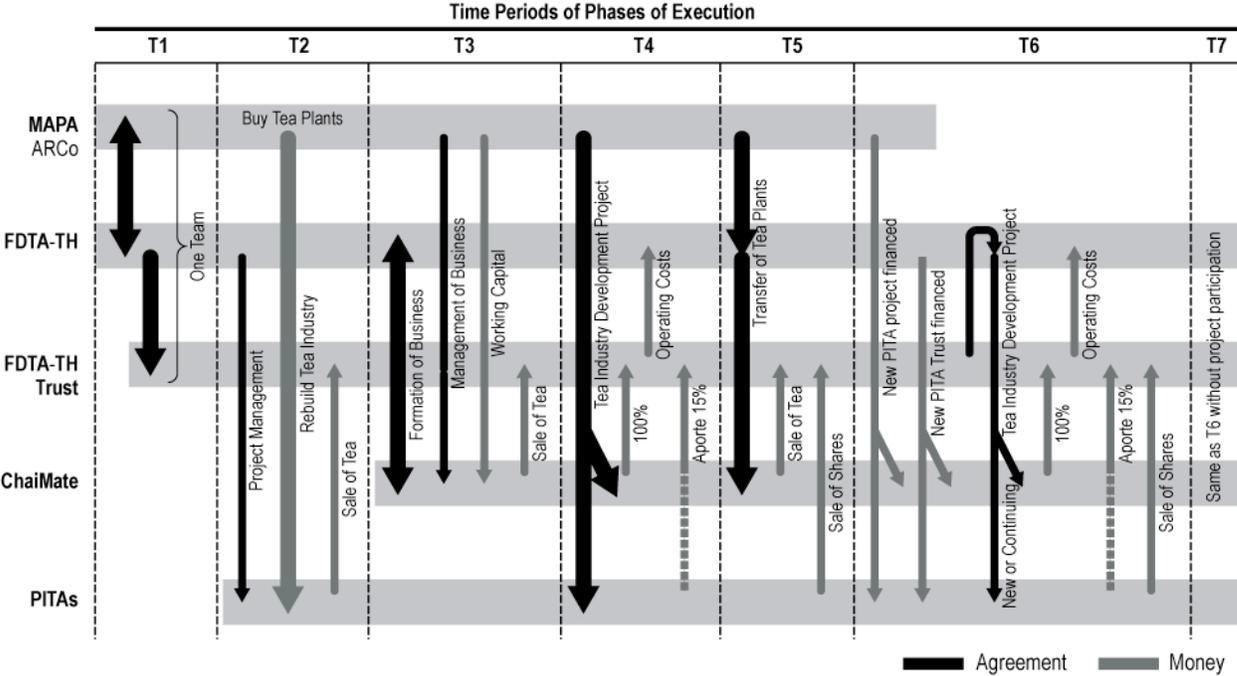
The full explanation of how these issues were addressed is in the section of this report that deals with the tea industry. The important point is that we did successfully address them and were convinced that we could revitalize the industry to become sustainable and profitable.

Part of our conundrum was that we had no viable entity to which we could entrust this work. The businesses that had been involved were in one case, not interested, and in the other case, unqualified, to undertake this work. Our solution was to work with FDTA-TH and accomplish the following:

1. FDTA-TH established a trust.
2. Three of the five trustees appointed by the board of directors were MAPA employees: Enrique Rivas, Marcos Moreno, and me.
3. MAPA signed a grant agreement with FDTA-TH that required that FDTA-TH cede all authority to administer the grant to the FDTA-TH Trust.

- 4. The board of trustees assigned Mr. Rivas to oversee the implementation of the grant.
- 5. The grant included a clause that allowed the MAPA project to execute disbursements in benefit of the grant, according to the directions of the board of trustees, or, in this case, the person appointed to administer the agreement: Mr. Rivas, a MAPA employee. Oversight of the process included MAPA, the trust, the board of directors, and USAID. All major expenditures received the no-objection of USAID.

MAPA - FDTA Business: A Model for Re-Circulating Development Funds



All of this is reflected in T1, the first phase of the undertaking shown in the figure. With this agreement, MAPA, the trust, and FDTA-TH essentially became one team for the purposes of implementing the rehabilitation of the tea industry.

During T2, MAPA purchased the tea plants. As with all USAID-funded purchases of major goods or installations, property of the tea plants was retained by MAPA. A tea revitalization project or PITA was designed and initiated with funds dedicated for the purpose of rehabilitating the tea industry. As this work progressed, tea was purchased from farmers, processed, and sold. The cash generated was put into the Patrimony Fund, to be administered by the trust, and kept in a separate account, for which MAPA staff did the accounting. As agreed with USAID and FDTA-TH, these funds were to be used to revitalize the tea industry.

During T3, a tea-processing business was formed, called ChaiMate S.A. This was accomplished by FDTA-TH and

two farmers signing the legal papers to create the business. FDTA-TH assigned the management of their shares of the business to the Trust. Trustee Mr. Rivas was assigned to sit on the board of directors of ChaiMate S.A. on behalf of FDTA-TH. The dotted line in the figure shows that while Mr. Rivas directly represented the trust, as a MAPA employee, he also represented the interests of MAPA for the proper functioning of the business. MAPA assigned working capital to ChaiMate S.A., amounting to about \$18,000. At this point, the business consisted of a few employees, and the purchase, processing, and sale of tea. It had no facilities, but used the tea plants and facilities purchased by the trust and held by the MAPA project. The sale of tea provided operating capital for ChaiMate S.A. and for returning to the patrimony fund in the trust. At this point, the tea intervention had two distinct branches of activities. ChaiMate was a business that bought, processes and sold tea. The other arm was the development of the tea industry. The development activities included everything related to increasing acreage, density, productivity, and new marketing efforts.

In T4, a major new agreement is represented by the heavy dark arrow running from “MAPA-ARCo” and the “PITAs” line. At this point in the figure, the ARCo project should have become a factor. ARCo is the project that was charged to work in the Yungas and Chapare Integrated Development efforts. It was expected that there would be a new agreement between FDTA-TH and ARCo to continue the revitalization of the tea effort using funding from ARCo. It is important to recognize that ChaiMate S.A. was expected to fill two roles. First, it is a business and is expected to function as a business in the long run, without subsidization. Second, it is a tool that can be used to execute development in the tea sector. In this new project, the funds assigned to ChaiMate S.A. as a business are expected to have a repayment of 100 percent to the patrimony fund (these would include funds such as those used for the purchase of equipment). Those funds assigned to activities linked to development must, as with other PITAs, involve a repayment by the growers of at least 15 percent (these would include funds such as those used for extension activities with farmers). The line showing this repayment is dotted between the PITA and ChaiMate S.A., because the farmers are paying the fee, but the collection and payment are managed by ChaiMate S.A. This agreement includes a minor fee to FDTA-TH for its participation in this process. This is also the first time the re-cycling of the development funds arriving into the patrimony fund are available for possible assignment to FDTA-TH to cover its operating costs. At the close of MAPA, there were close to \$100,000 of these funds available to do new development.

In T5, the MAPA project is ending and the tea plants and equipment had to be disposed of. An agreement between the GOB and USAID will assign this transfer from MAPA to FDTA-TH, expecting that the foundation will immediately transfer ownership to ChaiMate S.A. This provided an immediate infusion of capital into ChaiMate S.A. and is represented by a dramatic increase in the value of the shares in ChaiMate S.A. owned by the foundation and managed by the trust. During this phase, in addition to the reflows associated with the sale of tea, a new element is added. FDTA-TH could begin to sell some of its shares in ChaiMate S.A. to the growers. This is accomplished by raising the price paid to the growers for their tea, but maintaining the same cash payment, with the difference credited to the farmer as shares in ChaiMate S.A. The sale of the shares is passed back to the patrimony fund of FDTA-TH as managed by the trust.

In T6, there are two sources of potential project funding, the ARCo project and the trust. The first dark line represents the project from ARCo first shown in T4. The subsequent blue line is a new project agreement between FDTA-TH, ChaiMate S.A., and the growers. The next dark line shows that with the approval of that project, the trust passes money to FDTA-TH, which then executes the project in the normal SIBTA fashion with ChaiMate S.A. acting as the *oferente*. It also shows that the reflow of funds continues to be from ChaiMate S.A., from the growers to pay their *aporte* and from the growers for the sale of shares in ChaiMate S.A.

In T7, the same processes shown in T6 continue, but with the conclusion of the ARCo project. At this point, ChaiMate S.A. will be a self-sustaining, profitable business. It will provide the farmers with an outlet for their tea. It will benefit the farmers as they become shareholders and receive payments from the distributed profits of the company. It will benefit FDTA-TH by providing dividends the trust can use to cover operating costs of the foundation. It will benefit the foundation and the wider community as it provides a source of continued financing for additional development projects.

The development of this model has accomplished several goals:

- It has provided FDTA-TH with a trust that is a useful, credible, and transparent vehicle for supporting FDTA-TH development objectives.
- It has provided the donor community with a powerful, flexible, transparent, and efficient model for managing development funds.
- It has benefited farmers by giving them a profitable outlet for their tea and a financial stake as stockholders in a profitable business.
- It has benefited Bolivia by drawing new participants into the formal economy. In the long run, this may be the most important achievement as it breaks through the tax barrier that effectively keeps most farmers in the informal economy and inhibits their chance of becoming agribusinesses that support long-term economic development.
- It has benefited the farmer associations, because representatives of the associations sit on the board of directors of ChaiMate S.A., without burdening those associations with the management of the business. In this way, they can be active participants without straining their social-political origins and structure.
- Unlike the more traditional implementation of SIBTA PITAs, this model recycles donor funds multiple times, leveraging the original donations.

The implementation of the spice industry with the trust of FDTA-Valles is functioning in a similar fashion. In both cases, establishing businesses managed through the trusts was only undertaken after it was determined that no private company was involved in the business for whom the MAPA and trust operations would represent unfair competition. As can be seen, an initial subsidy is needed to jump-start the sustainable businesses. This subsidy would be unfair competition if there were a viable business community already involved in these activities.

CHAPTER 5

SIBTA: THE GOOD, THE BAD, AND THE UGLY

THE GOOD

Perhaps the simplest description of SIBTA is that it is a system that allows the government of Bolivia to dedicate funds to private foundations in order to gain the efficiency, transparency, and effectiveness of the private sector for achieving poverty reduction. SIBTA represents a multinational collaboration that is truly remarkable. The CAS (*Comité de Acompañamiento al SIBTA*) is comprised of the representatives of the international missions of the United States, Germany, England, The Netherlands, Japan, Switzerland, and Denmark, as well as IICA/FAO, European Union, and IDB. The CAS advises the minister of agriculture regarding the implementation of SIBTA. The CAS has proved to be the stable influence across changes in government in making sure that momentary political adventurism has not diverted or derailed SIBTA.

The single most important characteristic of SIBTA reminds me of the mythological Ulysses who had himself tied to the mast of his ship so that no matter how enticing the Siren's song, he could not throw himself into the sea. Just so, SIBTA is a brilliant plan by the government to protect its long-term poverty reduction effort from the irresistible Siren's song. The Siren's song in this case is the never-ending cacophony of poverty alleviation demands. I liken SIBTA and the operations of the FDTAs to that of a machine. The machine mechanism operates according to a set of rules, known as the Operating Procedures for the Competitive Fund for Innovation. The machine produces poverty reduction. The government and the donors put money into the poverty reduction machine that, like fuel, makes the machine work. Once the fuel is in the machine, the government cannot redefine its use, it cannot divert the resources to other purposes, it cannot remove the money, and it cannot change the operating rules on a whim. No matter how strong the "Siren's Song" to respond to immediate crises, the resources are protected and out of reach. Thus, the long term poverty reduction objectives are maintained. The government must, and does, respond to poverty alleviation issues, but with other funds. SIBTA ensures that the government is able to maintain its longer-term poverty reduction program by isolating and protecting SIBTA funds from the government itself.

The SIBTA design includes the concept of farmers paying a part of the cost of the services they receive. This is good, because it helps ensure that the interventions really are of interest to the farmer and not simply accepted because they are free. The concept is very good, but as will be explained below, the implementation is not always good.

SIBTA now has a proven track record at accomplishing the very objective for which it was created, of making sure that effective agricultural technologies are being made available to farm families, resulting in their substantially

increased income. The operation of the FDTAs allows it to be responsive to the needs of growers and to create projects that solve their real problems. It is a proven system and deserves improvements by resolving the issues described below.

THE BAD

When SIBTA was in the process of design, the members of CAS were adamant that the system be responsive to the needs of farmers. They were concerned that the SIBTA system operated under the “tyranny” of the researcher, and that the system responded more to academic research objectives than to the practical needs of farmers. Their insistence that the new system meet the needs of the farmer, which is a good thing, led them to do a bad thing. They included in the design that SIBTA’s operation be governed by “demand.” They defined “demand” according to what it is that the farmer “demands” to solve his problems. The SIBTA designers had substituted the tyranny of the researcher for the tyranny of the farmer. In terms of accomplishing poverty reduction, both are bad.

There are two reasons why this definition of “demand” was not good. First, the farmer often does not know what might be the best solution to his problem. There are numerous examples, but consider the plight of potato growers in the altiplano. Hand cultivation of potatoes is very hard work. In recent years, some organized potato growers have “demanded” that the government provide them with tractors to facilitate their potato growing. This demand has been wrong-headed. The objective should not be to reduce the hard labor, but to sustainably increase farmer income. The solution is not tractors, but rather growing something else, like oregano. The second reason is that, indeed, there should be “tyranny” in terms of deciding what the demand is. That tyranny should come from the market. The market should dictate the demand for what is needed to improve agricultural systems. In the case of MAPA and FDTA-Valles, this substitution of the source of demand for interventions has involved, first, recognizing market demand, or market opportunities, and second, finding interventions to help the farmer respond to those opportunities with actions that have the following characteristics: 1) the farmer agrees to adopt the intervention and is willing to pay part of the cost –this satisfies the donor’s desire that the farmer want the intervention, 2) the intervention is low cost, 3) the intervention has high impact in terms of increasing income, 4) the benefits are achievable quickly, and 5) the intervention is environmentally and economically sustainable in the long term.

Another “bad” characteristic of the system is that it suffers from a political version of Alzheimer’s disease. There is little short-term political and institutional memory. During the five-year life of the MAPA project there have been six presidents, nine ministers of agriculture, and a blur of changing faces in lower positions in the government. SIBTA is a unique and innovative system. This means that every new official has to learn what this peculiar system is and what their relationship to it is. Not all of them are interested in learning, and many come with an agenda that is unfriendly to overseeing a major system not of their making, and for which they do not exercise direct and complete control. SIBTA exists because it was defined into existence by executive decree (*Decreto Supremo*), which means that a particularly unfriendly government could conceivably eliminate it, also by executive decree. An important achievement of CAS has been to moderate the tendencies of officials who are not friendly to SIBTA. SIBTA’s structure and functionality would be more stable if it existed under the authority of a law. However, no sitting congress, since the beginning of MAPA, could have been trusted to pass such a law without adding some undesirable tinkering. This presents a dilemma. The real strength of SIBTA is that it has a long-term vision. Its benefit to Bolivia is in maintaining a consistent program of long-range, effective poverty-reduction activities. However, its very existence is founded on a frail foundation. One cannot count on the solidarity of CAS to be permanent, although it is the solidarity of CAS that has given SIBTA its stability. The members of CAS are sensitive not to impose their will upon the GOB, but I believe

it would be well for CAS to make a heroic effort now, while it can, to get SIBTA institutionalized as law under conditions that preserve its present structure and operations.

Another “bad” characteristic of SIBTA has to do with the way funding for the system was originally structured. The admirable cooperation among donors represented in the CAS led them to agree to the creation of a basket fund to finance all of the FDTAs in an equitable manner. One of the sources of funding was a loan to Bolivia through the IDB. The IDB funds are governed by a set of restrictive rules and conditions. One of those conditions related to a percentage distribution of funds that governed the minimum contribution of funds by the GOB that had to accompany IDB financing. As a result, the members of CAS tied their funds to those of the IDB in order to allow their funds to be used to satisfy the IDB-required counterpart. In this way, the rules of the IDB became the de facto rules governing the use of the other donor’s funds. That was bad, and it will be discussed more fully in the next section. When the collaboration of the CAS was being built, the members of CAS faced a problem. One of the major donors, USAID, could not legally mix its funds with those of other donors. Therefore, it could not place its funds in the basket fund. As a result, USAID participation had to be treated as an exception. Its funds were not linked to IDB financing and were not governed by IDB rules. USAID funding and its management system became the exception. That de-linking from IDB funds made a tremendous difference. The USAID funding was channeled through the MAPA project and executed under the more results-oriented USAID rules. Several evaluations of SIBTA have highlighted the very large differences between the USAID/MAPA-funded FDTA-Valles and the rest of the FDTAs. One of the principle reasons for this large difference is that FDTA-Valles has been less crippled by IDB rules than the other FDTAs. The solution to this problem is for the affected members of CAS, those comprising the sub-group known as FOCAS, who originally put their money into the basket fund, to de-link their financing from the IDB money. They should do this even if it means that a significant portion of the IDB loan goes unused. The following section explains why this would be a good thing.

SIBTA originally contemplated that farmers’ payments made in exchange for project benefits would eventually provide an economic base that would make the FDTAs financially self-sustaining. The design was flawed and the concept was wrong. The design flaw was that the payments from farmers were to go into an endowment fund, and that the interest generated from that fund would cover the FDTA’s administrative costs. In reality, the FDTA would have to generate 20 new projects per year for 34 years to generate an endowment fund large enough to support the FDTA’s administrative costs at today’s costs and interest levels.¹² Since the capital from the endowment could not be used, it would be possible for the FDTA to become insolvent while owning a multimillion-dollar endowment fund. More is discussed regarding sustainability in another section.

While SIBTA has proven itself to be a powerful development model, it has two “Achilles heels” with regard to its relationship to the donors. The first one has to do with the fact that SIBTA uses the private sector for implementing the system and also as the engine for generating income for farmers. There are two ways to make agriculture sustainable. One is to permanently subsidize it. The other is to develop it so that it can sustainably compete in the marketplace. In Bolivia, SIBTA has been supported by the collaboration of donors that represent a wide political spectrum. Most of them agree that permanent subsidies are not a good idea, but the way they build projects does not always reflect that. Most of the countries they represent subsidize agriculture at home, so there is not always a strong

¹² Assume the annual operating costs of an FDTA are \$250,000, that the endowment fund would generate four percent net earnings per year, that the level of farmer payments is 15 percent of the value of projects, that the FDTA actually recovers 60 percent of farmer payments, that projects have a value of \$100,000 on average, and that the FDTA can manage 20 new projects per year. It would take 34.7 years to generate an endowment large enough to support the FDTA’s annual operating costs.

negative reaction to proposals that include subsidization. On the other hand, donors from more socialist countries tend to view the private sector with more skepticism. The power of SIBTA lies in forcing Bolivian agriculture to face the reality and promise of the marketplace. The Achilles heel is that the donors do not have a solid commitment to making sure the reality of the marketplace remains part of the programs they support. The second problem is related to the first. Most donors are more attuned to the immediate political realities of their relationship with the government in power than they are to good development practices. As a result, many of them are willing to satisfy the former at the expense of the latter. A crucial characteristic of SIBTA is its long-term vision. Said another way, the second Achilles heel of the system is that some donors are not likely to stand up to a SIBTA-unfriendly government. Good development practices are not as important to them as current political relations.

THE UGLY

When I was quite young, I learned a valuable lesson about benefits and cost. I went to the state fair with my family. There was a huckster there who was offering people one dollar for free, just to try out a special pen. According to his description, this was probably the most extraordinary pen ever created. As he strung out his spiel, it turned out, one had to buy a full set of pens in order to be able to try out the special pen and thus receive the free dollar. The man was very effective in his presentation and many people put up their money. It turned out the pens you had to buy were low quality but the price for them was high. So, the net cost, even after receiving the “free” dollar was substantially higher than if people had simply gone to a store and purchased the pens. A difference between this lesson and what I see happening with the IDB financing of SIBTA is that there is no malicious effort on the part of the IDB to commit fraud, as was the case with the huckster. Nevertheless, the concept of being sucked into a high-cost, unfavorable deal is the same. The loan contract between Bolivia and the IDB is unfavorable to Bolivia in that the cost of executing the IDB money is higher than the value of the money itself. And the IDB has been impervious to information that it is perpetuating a high-cost, low-value loan for Bolivia’s people.

FDTA-Valles, during the course of the MAPA project, has had its operating costs covered by the MAPA project and does not depend on the IDB for that support. Nevertheless, FDTA-Valles was the first of the FDTAs to get an IDB financed project up and running. The financing for the project came from the IDB, but the financing of the operating costs of the FDTA for generating and managing the project came from MAPA. I did an analysis that showed that it cost USAID/MAPA \$114,000 in administrative costs to generate and execute a \$100,000 IDB financed project. In my mind, it was the state fair all over again, a high-cost, unfavorable deal. I did a similar analysis for what it was costing the other donors and the GOB to administer IDB financed projects for the other FDTAs. My estimate was slightly worse (\$116,000) than the estimate for MAPA and FDTA-Valles.

You may ask what causes such an unfavorable balance between operating costs and the costs of projects. There are several factors.

- IDB loans are typically negotiated by government officials who do not directly implement the money. These officials are judged by their ability to get the loan, and not by the contractual characteristics of the loan or how costly it may be to execute. As a result, the conditions of the contract, in the case of SIBTA, were not designed to achieve results. They are much more complicated than they need to be, and more complicated than IDB rules require. While it is understandable that Bolivian officials would not have known the best way to structure this loan, because it was probably the only one many of them would ever work on, it is not understandable why the IDB would allow such a badly structured loan to occur. Whatever the reasons, the conditions associated with this loan are overly complicated and onerous to implement.

- In the design of the first version of the operating procedures of the CFI, the IDB-financed consultant insisted that a \$100,000 ceiling on the size of projects would be more than enough. His experience was based on projects for laboratory research. Though the discussion was intense and there were strong opinions that this ceiling was not high enough for agricultural field projects, in the end, the members of CAS and the GOB narrowly decided to accept the consultant's recommendation with the proviso that the ceiling could be adjusted later. The decision became strong and the proviso weak. It costs almost the same amount to create and supervise a \$30,000 project as it does a \$300,000 project. The originally tenuous decision to use a \$100,000 ceiling became almost Biblical and successive IDB officials were unmoved by evidence that it was causing an unsustainable imbalance between FDTA operating costs and project size. It has taken five years to get that ceiling lifted to \$200,000 even though the evidence that it should be changed was available as soon as projects began to be implemented.
- Why do organizations behave the way they do? It is useful to consider the question of motivation. Bilateral donors operate in Bolivia under the objective of helping the country develop. If someone works for one of the bilateral donors, at some point, they must account for how effectively they have helped achieve that objective. The IDB is different. In my simplified view, it is important to recognize two major organizational motivations in order to understand the negative impact the IDB has on SIBTA. First, the objective of the IDB is to move money. That is why it exists and internally, how it judges its performance. A great part of that responsibility is accomplished when a loan agreement is signed. The IDB believes the responsibility for moving the money inside the contract and making the money work well is the responsibility of national authorities even though the IDB-defined rules govern how the national authorities must act. In other words, the IDB sets the rules but does not take responsibility when those rules turn out to be inefficient and ineffective. Second, the structure of the IDB focuses employee attention upward in the system, not downward toward its clients. I believe IDB employees are good people trying to do their job well, but the way the IDB functions distorts its potential effectiveness in development.
 - Inside the IDB, there is a higher professional risk for saying "yes" than for saying "no." The system is structured so that the audit risk is a governing factor. If permission to use funds is requested and the IDB employee detects even the slightest possibility that he might be later questioned for his decision, then the answer will be "no." If he says "yes" then he is open to questions and criticism for that decision. The responsibility for adhering to IDB rules is assigned to the host government. It is the IDB employee's responsibility to measure that compliance, always considering how those above him in the IDB structure will judge how well he has required that compliance. The practice of saying "no" becomes the best rule for audit-proof and professional self-preservation, but it can make the implementation of the funds next to impossible for local authorities.
 - At one point, the FDTA-Valles was unable to obtain IDB's no-objection for a project because of a minor technicality. This was a project that had already negotiated the year-long IDB-imposed approval process and was at the very last step. No amount of reasoning would move the local IDB official, even after weeks of back-and-forth correspondence. Finally, while in Washington, D.C. for other purposes, the executive director of FDTA-Valles visited the Bolivia representative to the IDB and, in the course of conversation, explained the problem. The Bolivia representative inquired about the case internally within the IDB structure. The no-objection was given instantaneously. The only thing that had changed was the direction from which the inquiry had arrived. The IDB's lack of sensitivity to the real objective of SIBTA, to use agricultural development as a way to reduce poverty, causes inefficiencies and frustration. Nevertheless, they are understandable when one considers the motivations that are institutionalized inside the IDB.

- The IDB sets the rules that govern how the money for the loan can be released. The IDB insists that the client, in this case UCPSA and the FDTAs, adhere to those rules. On the other hand, it demonstrates little responsibility in complying with those same rules when they apply to its own performance. Within the SIBTA system, the first set of operating procedures involved several steps that required a “no objection” determination for the IDB. The rules included the number of allowable days for each step in the project creation process. Under that set of operating procedures, at least for FDTA-Valles, the IDB never complied with the number of days it had formally agreed to within the operating procedures. On average, it went over the allowance by a factor of 10. Four days planned in the operating procedures became 40 days in practice. In the end, of all the things that had to be done to get a project up and running, 50 percent of the time was spent waiting for the IDB to give its “no objection.” This is understandable from the standpoint of the internal risks to an IDB employee for saying “yes.” It is devastating from the standpoint of efficiency and effectiveness.
 - There is nothing in the two governing organizational motives for the way the IDB functions, mentioned above, that have anything to do with agriculture. The IDB decision process is impervious to the reality of agricultural cycles. The first projects financed by the IDB took more than one year to get through the approval process. Crops and weather do not wait for IDB decisions. It was possible to lose two crop years trying to get IDB-financed projects up and running. It is easy to understand why some farmers were disillusioned when a promised project finally materialized two agricultural years after it had been initiated or when authorization to plant finally arrived just as his neighbors were beginning their harvest. In its isolation, the IDB considers all these to be implementation issues that would be resolved if the host-country officials simply met the IDB requirements in a timely fashion. This method of operation is both unjust and unjustifiable.
 - The implementers of the SIBTA system are the FDTAs. They are the ones that face all the implementation issues. If effective and efficient poverty reduction is to happen, they are the ones that must make it happen. If it is not happening, they are the ones that are living the problems, firsthand, as to why it is not happening. If there are problems, they are the ones to ask about them. In five years of MAPA, the IDB did not once gather the FDTAs together and ask, “How are we doing? What are the implementation issues?” As far as the IDB is concerned, those questions are implementation issues and the responsibility of the host government, not the IDB. There is additional evidence that poverty reduction is not a real IDB objective. As I was preparing this report, I asked UCPSA for data from the other FDTAs on the amount of income they had generated with their projects. I already had that data for FDTA-Valles. UCPSA did not have such data, meaning that they are not reporting such data to the IDB. To my mind, if poverty reduction were really an IDB objective, it would measure how much income was being generated for the poor through the use of its money. I can only conclude that effective and efficient poverty reduction is not one of the operational objectives for this particular loan to Bolivia.
- The focus on IDB processes and the lack sensitivity to farmers and agriculture is illustrated by the initial requirements for having farmer organizations submit three-page general descriptions of potential projects. At the outset, under the initial IDB rules, we were required to publish a 110-page bidding specification to guide the submission of a three-page project profile. This is not something you would do if you were really focused on extracting potential project ideas from farmer groups comprised of people with limited education and writing skills. It is something you would do if your primary intent is to adhere to IDB-established rules.
 - SIBTA is a mechanism whereby the public sector can direct public funds to be implemented for agricultural

development in the private sector, gaining both the efficiency of the private sector and protecting the funds from the winds of budgetary change in the government. The IDB rules forced the private-sector foundations to operate as extensions of government offices, thereby nullifying the value of using the private sector in the first place. This understanding of the FDTAs as government offices was so strong that more than one new minister of agriculture tried to replace FDTA staff with political appointees. Many times, I have heard public officials describe the FDTAs as offices of the ministry. This is a distortion directly created by the IDB loan.

- The implementing organizations (*oferentes*) competed for projects. They were not allowed to charge indirect costs. They could not charge for taxes even though they must give a legal receipt for the income received, meaning they had to pay taxes on that amount to the government. And their proposals were judged more favorably if they provided a counterpart contribution to the IDB-FOCAS funding. One of the stated objectives of SIBTA was to strengthen *oferentes*. In fact, the system weakened them or made it impossible for them to participate. To understand why, let me give an example. Suppose you are in the market for a new car and you want car dealers to compete for your business. You tell them that you will only accept offers that charge you exactly the same amount they paid for the vehicle, that you will not pay taxes, and that the dealer who throws in the most expensive options at no charge will get your business. You will not get any offers from legitimate businesses. These are exactly the conditions faced by organizations that wanted to bid on executing PITAs. As a result of these rules, the only *oferentes* that could honestly compete for projects were subsidized, such as NGOs with other sources of funding to cover their indirect costs, or highly informal *oferentes*. These rules almost guarantee that *oferentes* have to submit bogus budgets that hide taxes, indirect costs, and profit. If they don't do that, they have to evade the tax laws. If any private bank did business the way the IDB does as described above, its principal officers would have grave legal problems. However, the IDB is a public institution and it is an international organization, so it is not held accountable as a private bank would be.
- At the outset of the SIBTA design, the IDB agreed to provide the financing for the salaries of staff of the FDTAs. USAID made contingent plans for the design of MAPA in case the IDB did not meet that commitment. It did not. In the case of FDTA-Valles, as a result of this IDB failure, MAPA paid the cost of salaries. In the case of the other FDTAs, the IDB determined that employees would have to be consultants, not employees. That means the employees of the other FDTAs accumulate no social benefits, no vacation, no severance rights, no insurance, no retirement, and no holidays. Normally, consultants are paid higher rates because they are responsible for their own social benefits. In the case of SIBTA, there was no allowance for higher salaries and the rates were actually lowered after the implementation began. These salaries do not reflect any of the costs of social benefits. By law, it is illegal in Bolivia to lower the salary of someone who has already been hired. Bolivian courts have determined that these practices are illegal, based on a lawsuit brought by a former employee of one of the FDTAs. Regardless of what a court says, these practices are immoral.
- Every organization needs three basic things to be successful: responsibility, authority, and resources. In developing countries, it is common for people to wait hours in long lines to talk to a government official who does not have the authority to make a final decision nor the resources to execute it if s/he did. He or she has the responsibility, but neither the resources nor the authority to make anything happen. The proven genius of the SIBTA system, of using the private sector to carry out development using public funds, has been, to a large extent, neutralized by the use of IDB funds. The IDB loan requires the oversight of a coordinating unit, in this case, UCPSA. The actual implementation of the IDB rules means that instead of private FDTAs implementing public funds, the FDTAs are forced to act as extensions of public offices. They are given the responsibility for doing the development, but they

do not have the basic authority to act. Most authority resides with UCPSA and the IDB. The FDTAs do not have direct control of the resources. This has created the condition whereby, for much of the time since its inception, UCPSA acts as the actual implementing organization and treats the FDTAs as satellites or dependents. This is reflected in the annual spending of SIBTA. Other than the exception of FDTA-Valles and MAPA funding, UCPSA executes the largest component of the annual budget –not the FDTAs that were supposed to be the implementers. One evaluation of SIBTA noted that while all the FDTAs work within the SIBTA framework, FDTA-Valles was much more successful than the other FDTAs. The report noted that USAID funding of FDTA-Valles through the MAPA project was the single most important factor that accounted for its success relative to the other FDTAs that had to use IDB rule-governed funds for most of their work. In short, the IDB rules create an unbalanced system in which the FDTAs have the responsibility, but neither the authority nor the resources to do the job.

- An IDB consultant determined that one of the requirements of the loan would be a computerized information system for monitoring the performance of SIBTA. The proposed system was badly conceived, but it was a loan requirement. Before this million-dollar system was started, UCPSA was advised, in writing, as to its very serious flaws, its unjustifiably high cost, and just how the system would fail. Nevertheless, because it was part of the IDB loan agreement, UCPSA was required to proceed with its implementation. If they did not proceed, their own jobs would be put in jeopardy. The system has lived up to every negative expectation. It was expensive to develop, it was badly designed, it is onerous and expensive to use, and it does not generate the reports that are used to monitor SIBTA. Who pays for this folly? The people of Bolivia. The system was required by the IDB, but the IDB now takes no responsibility for its failure. Pressure was put on FDTA-Valles to sign a formal statement that the system worked just fine in order to provide audit protection for the payments made to develop the system, when in fact the very people pressing for the signature openly admitted that the system was a disaster. To its credit, FDTA-Valles refused to buckle to the pressure and signed no such statement.
- One of the rules associated with this loan is that no more than five percent the value of a PITA can be used for infrastructure. This is a restriction that has limited or weakened a number of projects.

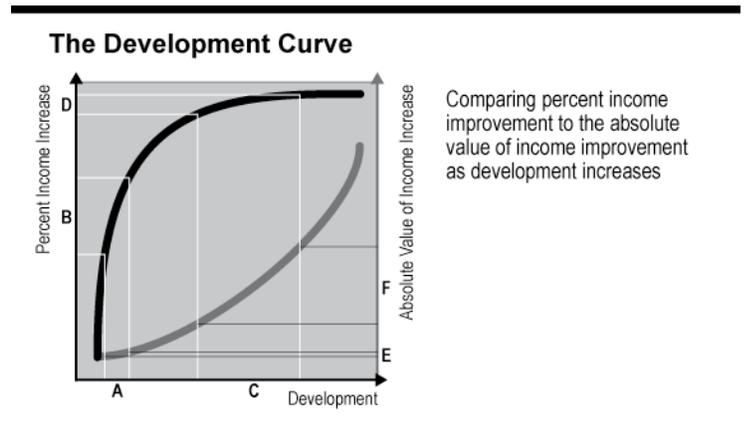
In my estimation, the participation of the IDB, as it now stands, is the most serious threat to the long-term viability of SIBTA. But, there is a solution. The other donors should de-link their funding from the IDB and directly fund development projects through the FDTAs. By so doing, their money will be more effectively and efficiently used to reduce poverty. This is not a hypothesis, but a proven fact by the way FDTA-Valles has excelled using USAID fund. The government of Bolivia should cease using IDB funding until the loan agreement is re-negotiated, and the loan should be re-negotiated using people with experience in SIBTA who understand what it takes to make the system work. Since the movement of money is the way the IDB judges its own performance, refusing to use that money may be the most effective way to get the attention of the IDB. In my view, there should be fixed-price contracts with the FDTAs. The contracts should specify responsibility for achieving specific poverty-reduction objectives for the FDTAs, such as the number of families benefited and specific levels of increased income. Payments would be made against the incremental achievement of those objectives. UCPSA would become what it should have been all along: a lean coordinating unit of three or four people that certifies that the objectives are met, and that there is transparency in the process. This way, the IDB would be allowed to do what it is supposed to do: disburse money against development objectives, and remove itself from the process of implementation.

CHAPTER 6

DEVELOPMENT ISSUES

MAPA has more than achieved its objectives. The project beneficiaries are better off because of MAPA efforts. The Bolivian economy has benefited from the effects of MAPA interventions. But, let's be clear. We have had such a high impact because we are working at the bottom of the development curve. Even with the advances of MAPA, our beneficiaries are still poor. We have been able to identify and implement high-impact, low-cost technologies that improve people's incomes. In the future, the more work that is done with these same growers, the greater the investment will need to be to achieve a smaller percentage increase in income.

The figure illustrates the relationship between the level of development, compared to the percent and absolute value of increase in income. At the bottom end of the curve, small development advances represented by the distance between the vertical lines denoted by "A" result in large percentage increases in income shown by "B" but small absolute values of increase (E). When an economy becomes more developed, large changes in sophistication of technologies or efficiencies (C), typically have smaller payoffs in terms of percent of increased income (D) but more significant increases in absolute value of income (F). A farmer who has worked with us, learning to grow oregano, may have more than doubled his income. However, in absolute terms, his income has only gone up by \$350 per year. So, while MAPA has exceeded its original objectives, we should remember that we have been working at the bottom of the development curve. People really are better off, but in terms of how much more income they have to participate in the world economy, it is not yet much. But, it is a good start and a sustainable one that will grow.



When does development happen? On average, when people contribute more than they take, development happens. That is true at the national, community, and family level. It follows that the next question is: What causes people to contribute more than they take?

There are innumerable opinions as to why people do what they do. In my simplistic view, human motivations for conscious action can be divided into four categories:

1. Passion
2. Power
3. Possessions
4. Principles

The first three generally point inward and are self-serving. The fourth may or may not be self-serving, but it signifies that the individual acts according to an external standard. When that external standard or principle leads a person to contribute more than he takes, development happens. Said another way, if that external standard is one that leads the individual to act altruistically, for the benefit of others, then that person's actions become a force in favor of development.

Over the years, I have been fascinated how frequently the administrator of USAID or his deputies have referred to the work done by USAID as seeking "shared values," "democratic principles," and similar phrases. I agree that the achievement of such principles does lead to development. However, USAID programs typically do not have results frameworks that explicitly attempt to change people's values. Nevertheless, I agree with those leaders that recognize the importance and impact that the appropriate values can have on the development effort. Let's suppose that some super-evangelist were to convert a whole population to a set of values that caused everyone to act selflessly, in the interest of others. That population would not need USAID's help to develop. It would happen automatically. This is exactly why it is so widely recognized that women are particularly effective development agents. It is because mothers act altruistically on behalf of their children. A mother will take what income she has to improve the nutrition, health, education, and housing of her children. She acts out of selflessness and love, with the result that her children are better off. That is development. Men, on the other hand, often use increased income to do things that are self-serving, and therefore either do not contribute as effectively or actually impede development.

Since those of us who work in development do not proselytize to get people to accept those values that lead to development, we have to take a different approach. The first step is to realize that USAID and its development projects, like MAPA, really have only one tool: money. The formula for succeeding at development is to use that tool to work with people whose motivation is passion, power, or possessions, and get them to act "as if" they held the values or principles that lead to development while they are on their quest to achieve one of the other three objectives. In our work in MAPA, we focused on the element of "possessions," specifically, the desire to make a profit. The trick is to use our one tool, money, in such a way that we help people achieve their profit objective by employing actions that cause them to act "as if" they held the values that lead to development.

Let me give an example. One would hope that a farmer acts according to the principle that he is a temporary steward of the land and must husband and enrich the resource while it is under his care. The fact is that many people in underdeveloped contexts act as extractors, or exploiters of the environment, rather than as stewards. There are many reasons why this can be the case, including ignorance. Regardless of the reasons, the result is an impediment to development. One of the MAPA efforts has been to grow organic, sweet onions, for export. Organic production is more management intensive but, done properly, it tends to improve the soil, conserve soil, and generally protect the environment. Organic, sweet onions bring a premium price in the marketplace. MAPA uses the desire for a higher profit to motivate farmers to employ environmentally friendly practices necessary to produce the crop and make the profit. In other words, MAPA used its money to train people, set up systems, and make linkages to get the farmer to

act “as if” he held the principle or value of wise environmental practices that help establish a base for good, long-term development in the agricultural sector when in fact, he was pursuing profit.

MAPA was a finite project, with a defined end date. How does one ensure that the effort to get people to act “as if” they held the values that lead to development persists after the project has ended? Therein lies the potential power of the market place and competition. As a project, MAPA uses its tool of money and teaches the farmer the practices and systems necessary to achieve his profit objectives. Once MAPA has ended, if the systems and linkages have been properly established, and the free market is functioning fairly, the farmer continues to act “as if” he held the desired development values as he competes in the market place to achieve his profit objective. The market rewards him if he continues to act as trained and penalizes him if he does not.

The power of a properly functioning free market is to reward those participants who provide the best quality, the best service, the most volume, and the lowest price. It would be nice to think that people were driven by the principle that they should provide their customers with the best quality, service, and value just because that is the “right” thing to do. Since we can’t force people to hold such values, we have to use the free market as a substitute. The free market gets them to act “as if” they lived by those principles, as they work to achieve the sustainable profit that the free market can provide.

Over time, every country that has developed has gone through the process where its agricultural sector produces more volume, better quality, and more variety, at lower costs, while using fewer people. A well-functioning free market rewards best those in agriculture who achieve these objectives the fastest, the best, and the most efficiently. In other words, the free market rewards players in the agricultural sector that most successfully act “as if” they were acting based on those principles that lead to development.

A project like MAPA succeeds most when it uses its one tool, money, in such a way that it establishes systems, linkages, and processes that place all members of a commodity chain in a position to benefit from the power of the free market. Once this free-market machine is functioning well, a project like MAPA can go away, but the rewards of the free market continue to fuel the engine that has started running.

In his epic novel, *Anna Karenina*, Leo Tolstoy’s opening lines say something like: “Happy families are all alike; every unhappy family is unhappy in its own way.” I think he meant that all happy families share some basic principles and characteristics. Unhappy families, on the other hand, have an infinite number of ways to violate those principles and characteristics that lead to their unhappiness. I would plagiarize Tolstoy’s idea and say that all developed countries have developed based on the same basic principles and processes. Undeveloped countries, on the other hand, have an infinite number of ways to violate those principles and processes that block their ability to develop. The difficulty for development workers is not in finding the principles and processes that result in development, but in finding ways to help undeveloped countries break their bad habits and adjust their institutions and systems to take advantage of the principles and processes that lead to development. Among those principles and processes that are most important to lead to development are economic freedom, property rights, justice, and access to free markets. A successful project like MAPA uses money to set up the systems, processes, and linkages that let those principles and processes of development come into play in a self-sustaining system.

DEVELOPMENT AND FREE MARKETS

As a development issue, it is worthwhile to note that even very poor growers can benefit from being exposed to the

full power –and risk– of the marketplace. The success of MAPA is based on its ability to mitigate the risks to the poor of participating in the marketplace, but not shielding them from the harsh realities of its demands. The reasons someone can fail in the market place can be reduced to two. First, they can fail because they do not act the way they should. For instance, they do not do what is necessary to produce a product of sufficiently high quality. The second reason is that extraneous factors can enter in, such as a hailstorm or a drought. A project like MAPA must control and mitigate to the extent possible the second kind of reason. Regarding the first reason, the project has to train and assist the farmer, but not remove the risk in the market place that he faces because of his own actions. MAPA has been successful because it has helped farmers adjust their actions to avoid failures of their own making, while helping to ensure that the second kind of problem does not clobber the venture. We try to make sure that success or failure of a farmer in the market depends on how well his actions conform to those necessary to make a profit. This is essentially a behavior modification; it is cultural. Markets don't care how poor or rich you are, they reward you based on how well you respond to the market signals to produce a product with the qualities the market wants, when it wants it, at a price it finds attractive.

In chapter 16 of his book *The End of Poverty*, Jeffery Sachs says that there are no magic bullets when it comes to development. I disagree. We called them “silver bullets” and they are what we looked for in our work. Their qualities include:

- They are low cost
- They are proven, low-risk technologies
- They are relatively easy to apply
- They are economically, environmentally, and socially sustainable
- They are widely applicable
- They have high economic return

In short, we were looking for “silver bullets,” and we found them. Most commonly we found them in post-harvest technologies. I do not want to make it sound easy, because it is not easy, but it is possible to provide assistance to people that results in immediate and large income benefits that are sustainable. But, I repeat what I have said earlier. These interventions were possible because those we worked with were so low on the development ladder. The more develop they become, the more difficult it will be to find interventions with these qualities.

POVERTY: REDUCTION VS. ALLEVIATION

Poverty is a problem with many dimensions. One can think of a poverty spectrum that has poverty reduction at one end and poverty alleviation at the other end. Those actions that tend to relieve immediate suffering and solve life-threatening crises fall toward the “alleviation” end of the spectrum. Those actions that lead to sustainable improvements in income and that remove structural barriers that keep people poor, fall at the “reduction” end of the spectrum. One should not think that working at either end of the spectrum is better than the other. However, there are two factors that distinguish poverty alleviation and poverty reduction.

1. Poverty alleviation issues are typically more visible, more urgent, demand immediate attention, and tend to be unavoidable on the political agenda. They are the problems that get highlighted on the nightly news: the starving,

the homeless, and the disaster victims. Responses are often crisis responses. They are short-term efforts intended to alleviate the immediate emergency. Working on poverty alleviation typically aims at resolving immediate, often life-threatening needs, but does not change the structure of the underlying conditions that perpetuate poverty.

2. Poverty reduction is the way for a country to climb the development ladder. The required actions typically involve long-term commitments and require well-targeted, coordinated activities that develop benefits over an extended time. It must involve structural changes that remove the barriers for people to climb out of poverty.

Responsible governments must deal with both poverty alleviation and poverty reduction. In Bolivia, the tension between these two needs has existed in an environment that has been characterized by insufficient resources, short-lived governments, and vocal advocates of poverty-alleviation issues. The increasingly loud and belligerent demands from groups that feel entitled to immediate gratification have created an environment in which the booming voice of “alleviation” drowns out poverty-reduction dialogue. The short-term urgency of poverty alleviation issues tends to trump the hand of poverty reduction in the play for government attention and resources. Political survival of officials usually depends more on putting out the fires of poverty alleviation than the long-term planning and execution required for poverty reduction. SIBTA was designed to do poverty reduction. There are those that criticize it for not addressing poverty alleviation demands, but it was not designed to do that. The FDTAs receive public funds and use the power of the private sector to develop long-term poverty reduction interventions on behalf of the government.

There are those that criticize SIBTA because, once the money is in the system, the government cannot control and direct the projects and programs that result. But, that is the whole point. If the government were to intervene, it would do so based on the immediate political needs and demands and the long range poverty reduction program would be compromised. SIBTA greatly benefits the government because it protects the poverty reduction program from the government itself. It protects the funds dedicated to poverty reduction from being hijacked by the immediate demands of poverty alleviation. During the life of MAPA, we had nine ministers of agriculture. If SIBTA had allowed these ministers to dip their political fingers into the FDTA poverty reduction programs and change them according to their desires, we would have nothing more than a mishmash of short term, politically expedient actions with no long term coherent government program for poverty reduction.

WORKING WITH ORGANIZATIONS

SIBTA was designed so that the development projects typically are executed with a cooperative or association. The reason for this is that project beneficiaries must typically pay 15 percent of the value of the project, in cash. When the contract for the project is signed, there needs to be an individual that can sign the agreement on behalf of all the beneficiaries and thus the need of an association or cooperative that collectively represents the farmers.

This has led to a problem. Most cooperatives and associations are formed for political and social reasons. We try to make them act like a business. They typically do not have accounting systems, an administrative structure that is conducive to efficiency, or full-time employees. Often, they do not have the legal status to handle tax issues. Their officers are not typically trained in good management practices. Most important, they tend to not be transparent.

The solution that has evolved has been to create businesses and incorporate the participation of the cooperatives and associations, but to not depend upon them for efficient, transparent operations. This has several benefits:

- It allows the organization to retain its original purpose of being a social or political organization, while allowing its members to enjoy the benefits of a successful, transparent business.

- It helps keep politics and social issues out of the business management processes.
- It allows the agility necessary to compete in the private sector.
- It increases net income returns to the farmers.

We don't try to create a business if one or more businesses are already functioning, so as to avoid creating unfair competition. More will be said about this later.

SUSTAINABILITY

Let's try a thought experiment. Suppose you are the USAID administrator in Washington. You are seated in a congressional hearing room. The lights are hot, the cameras are running, and one of the congressmen leans forward to speak into his microphone. He addresses you and says the following: "The international development work accomplished by USAID has been truly remarkable. However, it has now been decades that we have been financing this effort. I believe it is time that USAID now begins to function on its own. Congress has provided plenty of money to get this whole effort going, now it is up to USAID to find its own money and continue the good work that we have started. Wouldn't you agree?" The cameras turn in your direction. Your microphone light comes on and everyone awaits your answer.

Being the diplomat that you are, I am sure you would give a politically correct answer that would play well on all the news networks. I would not. I would answer with a question, asking the congressman what planet he was from, as he surely could not be from this one. I think it that any reasonable person would immediately recognize that USAID is a tool used by the US government to accomplish development internationally. USAID should never be expected to somehow generate funds on its own to work in development. The concept of economic development in the environment USAID works in is the concept of subsidizing or jump-starting economic processes in the private sector that can then continue to grow on their own. But it is utter folly to think that the work USAID does should some day be self-sustaining financially. It is the private sector economic activity that should become sustainable, not the tool used to establish that activity. I use this example to illustrate the flaw that so frequently affects international donors when they talk about sustainability. Many of them confuse what it is that should become sustainable when development is successful. The goal should be for the business to become sustainable, not the organization that was the tool to promote the development.

My view of the root of this problem is the natural tension that exists between the public sector and the private sector. An international donor that directly subsidizes developing businesses is open to the criticism of the citizens of its own country. Suppose a donor helps a grower in a developing country. Those growers of the same product in donor's own country may ask: "How is it that I pay my taxes so that my government can go to that developing country and subsidize my competition using my tax money?" As a result, many donors seek to develop or work with non-governmental organizations that can, in turn, provide the private sector with services that promote development, without necessarily directly subsidizing the private businesses.

In the end, development happens because the economy grows. Economies grow because businesses prosper. The issue of sustainability should focus on the business, not on the organizations used to assist businesses to become profitable and self-sustaining. As in the case of USAID, it would not make sense for the U.S. government to think that USAID should ever become self-sustaining. Just so, it is fallacious for donors to think that the national organizations they use as tools for promoting development should become self-sustaining. If they are providing a

useful service to the donor, the donor should be willing to pay the cost of that service. Clearly, it is reasonable to think of leveraging donations with money from other sources, but it is not reasonable to expect that these organizations that are tools of development are any more capable than USAID itself of being financially self-sustaining.

One of the reasons donors sometimes succumb to this reasoning is that they see industry support organizations in developed countries that function well with no government subsidy and they think USAID's local counterpart organization ought to be able to achieve the same. The error of this thinking is to miss what it is that these industry support organizations in developed countries actually do. Self-sustaining, industry support organizations tend to have a ratio of staff to members served that runs in the thousands of members per staff person, and the members tend to pay a high membership fee. The activities they engage in are extensive. That is, they do things that serve the whole membership base or large segments of it. For instance, they meet with government officials to obtain more favorable policies. Development organizations, on the other hand, are very intensive. They tend to spend a great deal of time doing things for individual members and their staff to member ratio is very high—that is, relatively few members per staff person—and the members pay a low fee, if any at all. That is the nature of development. It is intensive and expensive. Third-world organizations that are forced to look for ways to generate money for their operating costs and activities quickly lose their development focus. The worst case I know of is an organization that was created by donor demand to do development work. After five years, the donor said, in effect: “We have been paying you to do development for five years. We have gotten you started. You now need to continue the same work on your own and be self-sufficient. We cannot keep supporting you indefinitely.” In this case, the organization survived. In the end, over 95 percent of the organization's resources were dedicated to generating funds, so that the remaining funds, less than 5 percent, could actually be used for development. Its entire focus necessarily changed from being a development organization to being an organization dedicated to those activities that generated funds. The organization achieved sustainability, but in the end it was virtually useless in doing the development work for which it was created.

Donors should recognize host country organizations that are their counterparts for what they are: tools for accomplishing development. As long as the tool is serving a useful purpose toward accomplishing the donor's objectives, the donor should pay for the operating costs as well as finance the development projects. Anything less and they quickly blunt the useful edge of the tool and the effectiveness of their money drops off dramatically. If a donor decides to stop paying for the service, it should do so with no illusions. The development work will stop, just as it would if USAID had its funds withdrawn by Congress. Even small deficits of full funding, requiring the organization to generate additional funds can have very large negative effects in terms of neutralizing focus or distorting the use of time and resources away from the development objective.

When donors think about sustainability, they should think about the sustainability of the business enterprises they are promoting, not the sustainability of the counterpart organizations working with them. The organizations the donor uses as tools should be not be artificially sustained after the donor has achieved the economic sustainability that was the objective. The donor should be willing to walk away without any worries about whether that organization survives. But it should be under no illusion that the development work will somehow magically continue. It won't. What must survive is the sustainability of the businesses in the economy. While the development organization is useful, the donor should be willing to pay the whole cost of its service. It should not devise destructive schemes that expect the organization to put up a counterpart contribution, nor should it expect to provide money only for projects and not operating costs. If the development service is deemed to be useful and effective, the donor should pay the cost and not compromise the development organization by trying to get something for nothing through schemes that provide only partial funding and thereby dilute the development work.

EXTENSION SYSTEMS

The Cooperative Extension system in the United States has been a phenomenal success and one of the reasons the U.S. economy has grown so large. The industrial might of the U.S. economy has only developed because the agricultural sector became so productive and efficient that it freed-up the economy for things other than just agriculture. I remember years ago seeing an estimate that of all the published information about agriculture, 75 percent originated with the Cooperative Extension – Land Grant College system in the United States.

Understandably, USAID has tried to copy that success in developing countries, usually with poor or mediocre results. Bolivia is no exception. In fact, the failure of the research and extension system in Bolivia was one of the reasons the SIBTA system was devised. In Bolivia, one reason the research and extension system has not been successful is simple economics. Agronomists graduating from universities are in a salary range so high that it is difficult for the agricultural sector to benefit from their expertise. I once asked the rector of a university in Bolivia how many agronomists it graduated per year. He said it ranged from 90 to 125. I then asked him how many of those graduates got jobs in agriculture after graduation. He said a recent survey found that only about 25 percent of the graduates found jobs in agriculture. In other words, the agricultural sector needs the expertise of trained agronomists. The country is graduating capable professionals every year. But, the salary expectation of these agronomists is out of reach of the average farmer. Similarly, national extension systems typically pay such low salaries that they cannot attract high-quality agricultural specialists, and they typically do not have the resources for transportation and backstopping these specialists need to be effective change agents.

I suggest that there be a re-thinking of the economics and education systems to bring the education system in line with the reality of the agricultural economy. It might be useful to design formal agricultural training programs that are targeted, practical, and short. I think donors would be willing to finance such programs. The idea would be to recruit children of farmers. They would come to a training center run by the universities. There they would receive training focused on the production of a specific crop. The course might last a week or two, several times per year. That way, students could receive field-level, hands-on training on the management of a specific crop throughout a crop cycle. When they “graduate” from this training they would be able to return to the farm and improve the profitability of that specific crop. The graduation certificate would not constitute a degree and would not put them in the job market. They would return to their farm and apply their newly acquired knowledge.

This sort of system would keep economics in balance with education and make sure the agricultural knowledge is applied on the farm, without creating a cost to the farm for the expertise, and without creating a pool of technicians who are drawn away from the farm for better economic opportunities.

In this way, I think we could begin to help the economy of Bolivia begin to experience the benefits of a good agricultural extension system, as the United States has.

CHAPTER 7

LESSONS LEARNED

Counterpart Relationship. Development projects like MAPA work with local counterpart and public and private sector organizations. There are fundamentally two ways project design specifies the nature of these relationships. A common way to define this relationship is to require the project to do all that it does, through the counterparts. Another approach is to establish project contractual development objectives with the mandate to work with appropriate counterpart organizations to achieve that objective. The two approaches may not sound very different, but they have important consequences during project execution. MAPA was designed according to the second model. Projects that are required to work through counterpart organizations often find themselves bogged down with political and administrative issues that greatly reduce their effectiveness. In the case of MAPA, the collaborative approach allowed MAPA the agility to work energetically with counterpart organizations, but not depend on their administrative systems or approval when immediate action was required. As an example, early in MAPA, we realized that the commodity chain of onions offered an attractive opportunity to achieve income increases for farmers. We were in the middle of the onion harvest. We designed an intervention to show farmers how to cure and dry their onions, reducing their post-harvest losses and increasing the onions' shelf life. If MAPA had been required to work through FDTA-Valles and the SIBTA rules, this effort would have required more than a year to wind its way through the approval process. By working with FDTA-Valles, we were able to get USAID approval within a few days, and in collaboration with FDTA-Valles, executed a timely and successful intervention in that same harvest season and thereby launched our onion program.

Of course, we accomplished most of our work by working with the EDTA and through the operating procedures of the Competitive Fund for Innovation. But because USAID had defined a collaborative and not a dependent relationship between MAPA and FDTA-Valles, the flexibility was there for MAPA to act as needed, without being constrained to work only through our primary counterpart organization. This was a good project design element included by USAID in MAPA.

Commodity Chain Flexibility. Sometimes, projects are developed to respond to specific problems. The project designs can become highly focused on those problems. Historically, it was common for agricultural projects to focus on one aspect, such as irrigation, production, or extension. The MAPA design focused on poverty and the use of agriculture to reduce poverty. Beyond that, the MAPA design was not limited to specific kinds of interventions, but had the flexibility to respond to whatever weakness it encountered in whatever commodity chain might be selected, to make that chain more successful. This flexibility was a key element of the MAPA success.

Project-CTO Relationship. When MAPA began, the contracts officer delegated maximum authority and responsibility to the project CTO. This allowed for an agile approval process between the project and USAID. It

allowed the project to develop rapidly and implement actions to respond to the constantly changing conditions encountered during implementation.

The formal relationship between the project team and the CTO is one in which the CTO exercises oversight and accountability. In the case of MAPA, the role the CTO chose to perform was to be more involved in the technical aspects of the project, by being on top of issues and activities. As a result, when it came time for approvals, he was already aware of the history, the needs, and the reasoning behind the request. This facilitated project implementation. Although this was a key contributor to our success, I am not sure how this could be institutionalized. In my mind, we enjoyed a rare combination of qualities in our CTO. He was involved with the project almost as a full-time team member, without overstepping his role and trying to run the project. He remained steady regarding the project objectives regardless of pressure from public officials and other donors. He kept the approval process moving, and efficiently advanced the project management process inside USAID so that it did not interfere with project implementation. Fortunately, Jorge Calvo was the CTO for the life of MAPA. In no small measure, his participation cleared the way for MAPA to achieve the success that it did. I list this as a “lesson learned” because it was so important for our success. Mr. Calvo is a CTO who is technically competent, USAID savvy, and favors an administrative style that is results-oriented rather than process-oriented. I am not sure how much of this can be taught, but a CTO with these qualities enhances the probability of project success.

Information Flow. Information has value. Sometimes, there is a desire on the part of counterpart organizations to control information, either for strategic advantage or to gain resources. One contributor to MAPA’s success was that USAID and FD’TA-Valles supported a policy of open communication and maximum dissemination of information. The most extreme example of this was in the dissemination of the daily perishable wholesale market information, nationwide. But it was also evident in terms of openness in sharing information with all players in the agricultural sector and inviting competition for projects.

Technical Team. MAPA enjoyed a competent technical team. Chemonics was able to identify a group of individuals with superior technical skills and the ability to work as a unit. There is no substitute for this combination of collegiality and competence. During the life of the project, there was pressure, at different times, to reduce the cost of the project by replacing staff members with lower-salaried individuals. We did not succumb to that pressure. It is a false economy to think that same results could have been achieved with a lesser team.

Let Businesses be Businesses and Cooperatives be Cooperatives. As we worked with farmer organizations, I told them that we had four objectives: 1) Help them produce a high quality product, 2) Do it consistently, 3) Do it efficiently, and 4) Do it transparently. Over the life of the project, we learned that we consistently achieved the first two, but the last two were difficult. Farmer organizations typically exist for social and political reasons. They are not usually good structures for conducting efficient, transparent business. Over time, we evolved models where we were able to work with these organizations as political and social organizations, but not depend on them for business. As described elsewhere in this report, we devised some ways to involve businesses and keep the farmer organizations from trying to be something they are not and from trying to do something they do not do well. In terms of project design, it is useful to allow a project the flexibility to adjust the business aspects of developing the commodity chain, to avoid the difficulties of trying to force farmer organizations to act like businesses.

In two cases, MAPA actually participated in the creation of businesses to achieve its development objectives. UNEC was created to manage the spice program. ChaiMate was created to run the tea business. A methodical and careful process was used in deciding to create businesses. Specifically, we had to resolve four questions:

1. Is there an existing business that can be assisted to do what is needed to make this development effort successful? If such a business existed, we didn't create another. The development work we do includes monetary assistance. It would be unfair competition for us to create a business where one already existed.
2. If there is no business, why not? We had to understand the answer to this question in detail. We had to understand the constraints that had inhibited a business from forming and successfully operating.
3. If we are to start a business, what are the conditions that mitigate the problems identified in question 2? We had to answer this question in order to know that we could resolve the problems.
4. What is the exit strategy? There has to be a way to leave the business, unsubsidized and profitable.

In the cases of ChaiMate and UNEC, we were able to satisfactorily answer these questions and both businesses are now running successfully. Both provide a continuing base on which to build further development efforts, with the assurance that farmers have a business partner in whom they can have confidence. In both cases, the business profits feed directly back into the development process.

Project Government Relationship. The structure of the MAPA design allowed us to serve the government and its purposes, but not depend on the government for anything other than the policy decisions that led to the creation of the project. This avoided complications that can arise when ministerial officers try to control a development project. In our structure, the government gets the credit and collaborates but does not control the project.

Board of Director Training. Each FDTA has a board of directors, as the governing body of the foundation. Early on in MAPA, we realized that the members of these boards were usually untrained in how a good foundation board functions. We developed a training system that we have used multiple times, for every FDTA. With FDTA-Valles, it is now a standard course for all new board members. We have designed a two-day course that covers the structure of SIBTA and the governing documents of the foundation. It also includes practical exercises on how the board is to function. This has resulted in boards of directors, particularly for FDTA-Valles, that have acted with the highest levels of ethics and professionalism. One of the most important things we have noted is that board members come out of the training with the mentality that they represent the FDTA to the agricultural sector. Without the training, members typically viewed themselves as representing their home organization or political unit to the FDTA. The latter mentality creates conflict among board members as they fight to maximize the benefits they can extract from the FDTA for those whom they represent. After the training, board members see themselves as responsible for helping the FDTA achieve its development objectives and serve its purposes. MAPA staff member Carlos Laserna, proved to be adept in this training. His insights are reflected in the statutes and operating procedures of all FDTAs.

Trusts. The innovation of the trust has proven to be a sturdy and useful addition to the original design of MAPA and the FDTAs. It provides a system of checks and balances, assures transparency, and imbues the FDTA with a sense of professionalism. It is a device that could be usefully included in the design of projects similar to MAPA.

Information Technology. One aspect of project implementation that has proven to facilitate implementation and leverage project success has been our liberal application of information technologies. We have tried to make sure we could use information technology to assist us to the maximum. Examples are having multiple photocopiers, multiple fast printers, fast computers, broadband Internet connections, a high-quality phone system, fast servers, good backup systems, grounded electricity (this reduces intermittent errors and hardware failures), satellite telephones for vehicles in the field, cell phones for most staff, and satellite uplinks for Internet connections at remote locations. We have

implemented a system that makes it possible to access our internal network and documents from anywhere there is an Internet connection. It is difficult to measure the opportunity cost of not having these facilities, but I am convinced that the high impact of MAPA is proof that they are cost-effective. Our approach was to consider the time of the team members to be our most valuable resource. Whatever we could do to leverage staff time or improve the efficient use of staff time, we adopted.

Balance. Every individual and every organization, to be successful, needs a balance of authority, responsibility, and resources. If I had to name one aspect of the MAPA design that most contributed to its success, it was that the project team had a good balance of all three. As a result, we were in a position to be creative, agile, and effective. A careful analysis of three questions can keep designers from inadvertently crippling the effectiveness of a project. Who controls the resources? Who is responsible for achieving the results? Who has the authority to make the decisions? In this report, there are examples of two extremes. In the case of the IDB participation in SIBTA, the design retained the authority with the IDB. The resources were controlled by UCPSA. The responsibility to get the work done was assigned to the FDTAs. This mismatch raised costs and reduced effectiveness. USAID, on the other hand, designed MAPA so that MAPA was responsible for the results and for building the relationships with counterpart organizations, the farmers, and the marketplace to achieve results. MAPA had authority to make the decisions on adjusting and guiding the project toward its objectives. Finally, MAPA was given the control over the resources to support the work. It has proven to be a solid, winning formula. And the winners are the farm families of Bolivia.

ANNEXES

Annex 1 MAPA Staff and Collaborators

ANNEX 1 MAPA STAFF AND COLLABORATORS

The following is an alphabetical list of staff who have worked on MAPA, and to whom the credit is due for making MAPA a success. This is not an exhaustive list, but if you are looking for good people to do development work, this is a good place to start.

Alandia Hinojosa, Ivana María	MAPA	Financial Assistant
Alcázar Salazar, Laura Susana	MAPA	Administrative Assistant
Alem Rojo, Ricardo Leandro	FDTA-Valles	Technical Coordinator
Álvarez, Juan	MAPA Yungas	Coffee Program
Alvéstegui Bustillo, Lily Fanny	MAPA Valles	Specialist in Vegetal Propagation
Antelo, Juan Armando	FDTA-TH	Trust Fund - Board of Trustees
Aramayo Estévez, Horacio Alberto	FDTA-Valles	Technical Head Oregano Program - Tarija
Aramayo Rivera, Lourdes	MAPA-Yungas	Tea Program - Administrative Assistant
Arambuero, Yesid	FDTA-Valles	FIT Projects
Arandía Ortuño, Pedro	MAPA-Yungas	Tea Program - Technical Manager
Aranibar Quiroga, Ernesto	FDTA-Valles	Trust Fund - Board of Trustees
Arce Gandarias, Néstor Javier	FDTA-Valles	Field Technician - Tarija
Arévalo Gonzales, Juan Fernando	FDTA-Valles	Post harvest and Agribusiness
Arias Torrico, Miguel Angel	MAPA-Yungas	Office Administrator - Coroico
Arrieta, Ximena	MAPA	Office Administrator
Ávila, Gonzalo	FDTA-Valles	Board of Directors
Ayalde, Liliana	USAID/Bolivia	Director
Baldivieso, Álvaro	FDTA-Valles	Board of Directors
Bellott, Javier	FDTA-Valles	Board of Directors
Benítez, Wilfredo	FDTA-Valles	Board of Directors
Benito López, Alfredo	MAPA-Yungas	Tea Program - Agricultural Extension
Bernal, Zulema	FDTA-Valles	Board of Directors
Bilbao La Vieja, Sandra	FDTA-Valles	SIMA - Reporter
Blacutt Toledo, Juan Jaime	MAPA-Yungas	Coffee Program - Technical Team
Blajos, Katia	FDTA-Valles	Administrator
Blanco Contreras, Carlos	MAPA-Yungas	Tea Program - Watchman Chimate Tea Plant
Botello Yanari, Cándido	MAPA-Yungas	Tea Program - Process Assistant
Botello Yanari, Fidel	MAPA-Yungas	Tea Program - Process Assistant
Brower, Bruce L.	MAPA	Chief of Party
Calderón Castaya, Natalio	MAPA-Yungas	Tea Program - Agricultural Extensionist
Callapa Flores, Margarita	FDTA-Valles	SIMA - Reporter
Calvo Carmona, Jorge	USAID/Bolivia	EOSOT MAPA CTO
Candia León, Alcides	MAPA-Yungas	Tea Program - Process Assistant
Canelas Figueroa , Ciro Joaquín	MAPA-Yungas	Tea Program - General Manager Caranavi Tea Plant
Capiona Yarari, Juan	MAPA-Yungas	Tea Program - Process Assistant
Cardona, Gregorio	FDTA-Valles	Board of Directors
Carrasco Carvalho, Rosemary Ivonne	MAPA-Yungas	Administrative Assistant
Casap, Fernando	FDTA-Valles	Berries Program - Tarija
Castillo, Hugo	MAPA-Yungas	General Services

Catacora, Gino	FDTA-Valles	Board of Directors
Céspedes López, Marcelo	FDTA-Valles	Technical Assistant
Chamorro, Mariandrea	Chemonics	HO Project Assistant
Claire Villarroel, Juan Carlos	FDTA-Valles	Programs Technician
Condori Flores, Miguel	MAPA-Yungas	General Services
Daza Mendizábal, Rodrigo	MAPA	Environmental Manager
Delgado, David	USAID/Bolivia	EOSOT Office Head
Diez Canseco, Manuel	FDTA-Valles	Board of Directors
Dorado, Gonzalo	FDTA-Valles	Board of Directors
Enis, Margaret	USAID/Bolivia	EOSOT Office Head
Espinoza, Freddy	FDTA-Valles	Board of Directors
Fernández Sánchez, Mauricio Javier	FDTA-Valles	Technical Information Systems
Ferrufino, Marcelo	FDTA-Valles	Monitoring and Evaluation Assistant
Flores Mamani, Fredy	MAPA-Yungas	Tea Program - Process Assistant
Flores Vargas, Gilberto	MAPA-Yungas	Tea Program - Process Assistant
Galarza, Mercedes	FDTA-Valles	Board of Directors
Gallo Lazarte, Mariela	MAPA-Yungas	M&E Assistant
Gandarillas, Antonio	FDTA-Valles	Board of Directors
García, José Luis	MAPA-Yungas	Tea Program
García, Martha	FDTA-Valles	Board of Directors
Gaskell, Mark	MAPA	Short Term Consultant
Gentry, Melissa	Chemonics	HO Project Administrator
Guardia Galindo, Edgar	FDTA-Valles	Executive Director
Guise, Earl	MAPA	Short Term Consultant
Gumucio Quiroga, Roxana	MAPA	Events Organizer
Guzmán Guarachi, Genoveva del Carmen	MAPA-Yungas	General Services
Guzmán Guarachi, Judit Carla	MAPA-Yungas	General Services
Guzmán, Álvaro	FDTA-TH	Trust Fund - Secretary
Harttman, Ratibor	MAPA-Yungas	Coffee Program - Coordinator
Herrera Álvarez, Elizabeth Jiovana	FDTA-Valles	Accounting Assistant
Herrera Antezana, Carlos	MAPA-Yungas	Tea Program - Administrative Assistant
Isnado, Gladys	FDTA-Valles	SIMA - Reporter
Jové, Franz A.	FDTA-Valles	Board of Directors
Kaiser, Mike	USAID/Bolivia	EOSOT Office Head
Lacy, Sallie Gordon	MAPA	Field Office Administrator
Laserna Rojas, Carlos Alfonso	MAPA	Training and Communications Manager
Laura Mamani, Justo Germán	MAPA-Yungas	Tea Program - Mechanics
Levy Pacheco, Marcelo	MAPA-Yungas	Coordinator - Coroico
López Cabrera, María Cristina	FDTA-Valles	SIMA - Analyst
Lora Cabrera, Leopoldo Esteban	FDTA-Valles	Transcripitor
Luna Huanca, Claudio Felipe	MAPA-Yungas	General Services
Luna Mejía, Matilde	MAPA-Yungas	Coffee Program - Technical Team
Mallea Condori, Wilfredo	MAPA-Yungas	General Services
Manson, Nancy	MAPA	Field Office Administrator
Mariaca Leiva, Wilfredo	MAPA-Yungas	Tea Program - Process Assistant
Medina M., Lucía	FDTA-Valles	SIMA - Reporter
Méndez Dehne, Miriam Mónica Marcela	MAPA-Valles	Office Administrator
Merino, Jorge	FDTA-Valles	Board of Directors

Meruvia, Paul	MAPA	Agricultural Production
Miranda, Gonzalo	MAPA	Short Term Consultant
Miranda, Teresa	FDTA-Valles	PAER-DER
Molina Guardia, Luis Fernando	MAPA-Yungas	Tea Program - Process Assistant
Mollo Quispe, Joaquín	MAPA-Yungas	General Services
Monzón Polo, Adolfo	MAPA-Yungas	Tea Programa - Process
Morales Benito, Julio	MAPA-Valles	General Services
Moreno Halphen, Marcos Antonio	MAPA	Agribusiness and Marketing - DCOP
Moscoso Arellano, Patricia Eugenia	FDTA-Valles	Administrator
Motes, Preston	Chemonics	HO Project Administrator
Mudge, Susan	Chemonics	HO Senior Vicepresident LAC
Munckel Miranda, Werner	MAPA	Electromechanical
Natiello, Peter	USAID/Bolivia	AD
Nina Vásquez, Julio	MAPA-Yungas	General Services
Núñez Rodríguez, Wálter	GDB	Ministry of Agriculture
Oquendo, Juan	FDTA-Valles	Board of Directors
Osinaga, Edilberto	FDTA-Valles	Board of Directors
Ovidio Borda, Virginia Maria	FDTA-Valles	Accounting
Pacheco, Enzo	FDTA-Valles	PAER-DER Manager
Pardo, José	FDTA-Valles	Board of Directors
Paz, Gonzalo	FDTA-Valles	Trust Fund - Board of Trustees
Peñaranda, Fernando	MAPA-Yungas	Short Term Consultant - Tourism Program
Peralta Santander, Bernabé	MAPA-Yungas	Tea Program - General Services
Pérez, Alfredo	FDTA-Valles	Board of Directors
Porras, Rafael	USAID/Bolivia	EOSOT
Prudencio, Daniela	MAPA-Yungas	Architect
Quintanilla, Mauricio	FDTA-Valles	Oregano Program - Sucre
Quiroga Montalvo, Andrés Nelson	FDTA-Valles	M&E Assistant
Ribera Cuéllar, Guillermo	FDTA-Valles	Trust Fund - Board of Trustees
Rivas Winners, Manuel Enrique	MAPA	Agribusiness
Rivas, Sergio	USAID/Bolivia	AD MAPA-Yungas CTO
Roca, Piedades	FDTA-Valles	Board of Directors
Rocha, Juanita	FDTA-Valles	SIMA - Reporter
Rodríguez, Jorge	FDTA-Valles	Accounting - Sweet Onion Project
Rojas Acebey, Jorge Héctor	MAPA-Yungas	Coffee Program - Coordinator
Rojas Argandoña, Amadeo	MAPA-Valles	General Services
Rojas Clauze, Yhin Lency	FDTA-Valles	Field Technician - Comarapa
Rojas Mendoza, Ramiro	FDTA-Valles	General Services
Rojas Vidal, Shirley	FDTA-Valles	SIMA - Training
Rupprecht Unzueta, Stefanie	FDTA-Valles	Librarian
Sáenz, Claudia	MAPA	Agricultural Production
Salame, Gonzalo	FDTA-Valles	Board of Directors
Salcedo Díaz, Víctor	MAPA-Yungas	General Services
Salcedo, Guillermo	MAPA	Grants Manager
Sánchez Pereira, Sergio	MAPA-Yungas	Tea Program - Production Manager Caranavi
Sánchez Rada, Mario	MAPA-Yungas	Process Assistant
Sánchez, Janet	FDTA-Valles	Board of Directors
Sandy Valencia, Ximena Elizabeth	MAPA	Grants Manager

Santander Sito, Alex	MAPA-Yungas	Process Assistant
Scarborough Rodríguez, María Carolina	MAPA-Valles	Administrative Assistant
Serrano Martínez, Jenny Natty	FDTA-Valles	Administrative Assistant
Serrudo, Gunnar	FDTA-Valles	Board of Directors
Silézar Ramírez, Francisco Javier	MAPA-Valles	Specialist in Horticulture
Silva Andreu, Gabriela Paola	FDTA-Valles	Coordinator FIT 8 & FIT 9
Soria Arze, Willy	FDTA-Valles	President of the Board of Directors
Sucapuca Laura, Willy	MAPA-Yungas	Tea Program - Extensionist
Tadic, Carlos	FDTA-Valles	Trust Fund - Board of Trustees
Taugner, Victoria	MAPA	Field Project Administrator
Tejada, Carlos	FDTA-Valles	General Services
Terzo, Lorena	FDTA-Valles	Board of Directors
Tola Paco, Moisés Lucio	MAPA-Yungas	Tea Program - Tea buyer
Torrico, Regina	FDTA-Valles	Administrator - Sweet Onion Project
Urquidi Morales, Juan Osvaldo	FDTA-Valles	Technical Assistant
Vacaflares, Gustavo	FDTA-Valles	Office Administrator - Tarija
Vargas Pérez, Brichit Yasmil	MAPA-Valles	SIMA - Reporter
Vega Mendez, Marti María Elena	FDTA-Valles	Executive Secretary
Velarde Mendoza, Bruno Eduardo	MAPA-Valles	Monitoring and Evaluation
Velásquez Saavedra, Deborah María René	FDTA-Valles	Field Technician - Sucre
Villa Yujra, Simón	MAPA-Yungas	Accounting
Villanueva Laura, Miguel	MAPA-Yungas	General Services
Villazón, Juan Carlos	FDTA-Valles	Board of Directors
Vilca Gonzales, Juana	MAPA-Valles	General Services
Walton, John	MAPA	Short Term Consultant
Whitaker, William	MAPA	Short Term Consultant - CPD Programming
Yates, Michael	USAID/Bolivia	Director
Zabalaga Cossío, Sandra Marcela	FDTA-Valles	Secretary - Receptionist
Zambrana Hermosa, Edith Eugenia	MAPA	Accounting
Zamora, Víctor Hugo	FDTA-Valles	Board of Directors
Zenteno de la Parra , Susana Clara	MAPA-Yungas	Administrator - La Paz
Zúñiga Belmonte, Mario	MAPA-Yungas	Tea Program - Warehouse Assistant