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**TECHNICAL ASSISTANCE TO LAPROMED
FINAL PROJECT REPORT**

Guatemala City, Guatemala

August 17-21, 1998

Steve Brooke

BASICS Technical Directive No 000-GU-01-029
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ACRONYMS

BASICS	Basic Support for Institutionalizing Child Survival
EDC	Economic Development Council (USAC program in which LAPROMED is housed)
IGSS	Guatemalan Social Security Administration
MSPAS	Guatemalan Ministry of Health
NGO	Nongovernmental Organization
ORS	Oral Rehydration Salts
PATH	Program for Appropriate Technology in Health
QC	Quality Control
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USAC	University of San Carlos
P&CSF	Pharmacy and Chemical Sciences Faculty at University of San Carlos

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I EXECUTIVE SUMMARY

This document serves as both a trip report and final project report for PATH's technical assistance to LAPROMED in Guatemala funded through BASICS. Mr. Steve Brooke of PATH visited the LAPROMED facilities in Guatemala City, Guatemala, August 17-21, 1998. The overall purpose of the visit was final project wrap-up. It should be noted that, along with other BASICS projects, this project was required to make a mid-project reduction in level of effort and number of technical assistance visits. Accordingly, Mr. Mervyn Hamer, Technical Director, did not make a final visit to LAPROMED to follow up on technical issues, and Mr. Brooke's final trip was shortened.

Specific initial objectives of Mr. Brooke's August visit included working with LAPROMED staff and the two in-country consultants, Mr. Eduardo Calderon and Mr. Carlos Anzueto, who have assisted throughout the project, to

- Review LAPROMED status regarding order rates, production rates, and transition of newly appointed production manager
- Meet with officials at the University of San Carlos (USAC), including the new Dean of the School of Pharmacy and the new Rector of the University, to review LAPROMED opportunities and requirements
- Finalize estimates for LAPROMED's projected product costs for 1999, using new sources of raw materials
- Finalize the elements of improved customer service that will be feasible for LAPROMED to implement in 1999
- Integrate these elements into a LAPROMED ORS Marketing Plan for 1999
- Meet with USAID Guatemala staff to review project status and progress

After Mr. Brooke worked with LAPROMED management to analyze the rate of new orders and production of LAPROMED's ORS product, *SueroVida*, during 1998 (an analysis which had not been done in detail prior to his involvement), it became apparent that LAPROMED was facing a serious production backlog. The rate of new orders was far exceeding LAPROMED production rates. LAPROMED was facing a "crisis of opportunity." This issue became the key focus of Mr. Brooke's final work with LAPROMED, the local consultants, and USAC officials, with a reduced emphasis on development of a complete marketing plan.

Specific accomplishments at LAPROMED during the technical assistance project as a whole, as well as key findings from Mr. Brooke's August visit, are noted below in relation to the six originally proposed objectives.

Revise Relationship with USAC

Economic Development Council (EDC) and LAPROMED management, Mr Calderon, of CALTEC Internacional, and Mr Brooke met with the Dean of the Pharmacy and Chemical Sciences Faculty (P&CSF), the Adjunct Secretary representing the Rector (Dean) of USAC, and senior staff of the Finance Office of USAC to discuss the opportunity to further ensure LAPROMED's sustainability by revising the financial and administrative relationship between EDC/LAPROMED and USAC

While a specific revision has not been accomplished during this technical assistance project, it is clear that (1) EDC/LAPROMED management and Mr Calderon have succeeded in greatly increasing the awareness of the success of LAPROMED by key officials at USAC, and (2) efforts are underway which will lead to increased financial and administrative autonomy of revenue generating programs, such as LAPROMED, at USAC Overall, significant progress has been made toward this objective

Strengthen Customer Service Functions

Mr Calderon's work has helped EDC/LAPROMED management develop a mission and vision for LAPROMED that integrate customer service as a key aspect of all LAPROMED activities (See Appendix A)

A Service Quality Manual has been developed and will be implemented

A plan for addition of critical customer service related resources has been developed and agreed upon by EDC/LAPROMED management and the Dean of P&CSF Significant progress has been made toward the customer service objective

Understand Needs of Current Customers

The assessment of the public sector market for ORS in Guatemala by consultant Mr Anzueto of OSMOSIS (Appendix B) provided EDC/LAPROMED management with important feedback on *SueroVida's* recognition in the market, as well as the desires of Health Areas in terms of customer service This objective has been accomplished

Increase Customer Base

With assistance from Mr Calderon, LAPROMED management has made initial efforts to strengthen LAPROMED's sales in the NGO market, resulting in orders from at least five new customers

At the same time, the rapid increase in demand from LAPROMED's current customer base has created a significant production backlog Until this situation is resolved, LAPROMED will not likely be in a position to provide good service to a large number of new customers Any further efforts toward this objective first should be carefully linked to resolving the production backlog through increased production

Reduce Product Cost

LAPROMED staff have identified and qualified an alternative, lower cost supplier of raw materials and have begun ordering from this supplier as current inventories are depleted. In addition, they have completed the analytical work necessary to allow the change from powdered glucose to granular glucose, a move which will save additional cost and improve product performance (easier dissolution and/or reduced clumping)

PATH estimates that these changes will result in a 27 percent reduction in the variable cost of raw materials in *SueroVida*. The overall result, for example, at a production volume of 1.5 million sachets, is that LAPROMED's cost of production will fall from 96 to 76 quetzales per sachet. Even without revision of the LAPROMED/USAC financial relationship, LAPROMED's cost of production can now match or beat any previous prices offered by local competitors. The objective has been completed.

Extend Shelf Life

LAPROMED staff have completed the analytical and regulatory work necessary to extend *SueroVida*'s shelf life to three years, and this new three-year shelf life is now noted on all *SueroVida* sachets. The objective has been completed.

Additional key issues concerning long-term sustainability and marketing strategy that face LAPROMED and its funders are noted below.

Long-Term Sustainability

While being part of USAC sometimes constrains LAPROMED's ability to react to changing market conditions, LAPROMED can only be sustainable as a supplier of ORS as long as it remains a training program of EDC/USAC.

LAPROMED, or outside supporters such as USAID, should keep any future investments in further capacity building narrowly focused on strengthening LAPROMED's ability to serve its core public sector ORS market in Guatemala.

Marketing Recommendations

Mr. Brooke's September 24, 1998, memorandum to Dr. Alba Nory de Barrera, Chief of LAPROMED (Appendix C), contains a simplified set of marketing recommendations for *SueroVida*. In summary, PATH feels that LAPROMED should adopt the following overall marketing objectives:

1. Work hard to maintain the position of sole supplier of ORS to the 27 Ministry of Health Areas.

- 2 Increase *SueroVida*'s sales with NGOs, so that the product becomes (if it is not already) the primary brand in this sub-segment of the public sector market. At least 75 percent of the NGO ORS supply should come from LAPROMED

Given LAPROMED's present inability to meet the demands of even its current customers, LAPROMED should not put immediate efforts into pursuing the second objective. However, as soon as LAPROMED can overcome the current production backlog and create a cushion of inventory, it will be important to increase activities to gain more NGO customers, since this will reduce LAPROMED's reliance on the Ministry of Health system.

II. PURPOSE OF VISIT

Prior visits of the BASICS/PATH consultants in May and October 1997 resulted in the identification of six key objectives to strengthen LAPROMED sustainability:

- Revising the relationship between LAPROMED and USAC
- Strengthening LAPROMED's capabilities in customer service
- Understanding the needs of current customers
- Adding new customers
- Reducing product cost
- Extending product shelf life

These objectives formed the workplan for the August 1998 technical assistance visit. All are either directly or indirectly focused on improving the market presence, customer service, and overall business management practices of LAPROMED.

In addition to overall technical assistance project wrap-up, the purpose of the August trip was to work with LAPROMED staff and the two in-country consultants, who have assisted throughout the project, to

- Review LAPROMED status regarding order rates, production rates, and transition of newly appointed production manager
- Meet with USAC officials (new Dean of School of Pharmacy, new Rector of overall University) to review LAPROMED opportunities and requirements
- Finalize estimates for LAPROMED's projected product costs for 1999, using new sources of raw materials
- Finalize the elements of improved customer service that will be feasible for LAPROMED to implement in 1999
- Integrate these into a LAPROMED ORS Marketing Plan for 1999

- Meet with USAID Guatemala staff to review project status and progress

After Mr Brooke worked with LAPROMED management to analyze the rate of new orders and production of *SueroVida* during 1998, it became clear that LAPROMED was facing a significant production backlog. The rate of new orders far exceeded current LAPROMED production rates. As of August 21, LAPROMED had unfilled orders for approximately one million sachets of *SueroVida*, representing five months of production at current rates of 12,000 sachets per day for four days per week. This issue became the key focus for Mr Brooke's final work with LAPROMED, the local consultants, and USAC officials, with a reduced emphasis on development of a detailed marketing plan. Mr Brooke's general recommendations to LAPROMED regarding a marketing plan for 1999 activities are included in his memorandum to Dr Alba Nory de Barrera, LAPROMED Chief (Appendix C)

III BACKGROUND

The overall purpose of the August 1998 trip was to wrap up activities under this technical assistance project. A brief summary of events leading to the project (much of which has been included as background in previous trip reports) is included below.

Sales of ORS from LAPROMED had been uneven since the initiation of production. The variability of sales primarily had been due to conditions within the Ministry of Health (MSPAS). For example, in 1995, orders from MSPAS were interrupted due to changes in the government and associated budgetary restrictions. More recently, in 1996, MSPAS decentralized its procurement function, so that instead of one large customer in Guatemala City, LAPROMED now had to deal with 27 individual Health Areas throughout the country. LAPROMED's other primary public sector customer, the Guatemalan Social Security Administration (IGSS), recently switched ORS supply from LAPROMED to a competitor because of lower cost. Other sales of ORS from LAPROMED consisted of one major contract manufacturing arrangement with ADAMED and sporadic small sales to a variety of nongovernmental organizations. Thus, the situation observed during the May 1997 assessment visit was that

- Sales to the MSPAS Health Areas were less than in 1996, and projections for future sales were unknown
- LAPROMED's second largest customer (IGSS) had switched suppliers

Immediate action was deemed necessary to solidify the relationship with the Health Areas and to explore the opportunities for expanding the customer base to better utilize LAPROMED's unused capacity and reduce its dependence on one key customer.

During the October 1997 implementation planning visit, the PATH team of Mr Hamer and Mr Brooke found a substantial improvement in LAPROMED's sales and production volumes. During the second half of 1997, orders from the MSPAS Health Areas increased, thus ensuring LAPROMED would produce and sell at near break-even volumes for 1997. After analyzing the strengths, weaknesses, opportunities, and threats facing LAPROMED, Mr Hamer and

Mr Brooke made two key strategic recommendations regarding the long-term direction for LAPROMED

- LAPROMED should retain the key direct supplier/customer relationship with its primary public sector market segments, rather than turning over all sales, service, and delivery responsibilities to a distributor
- LAPROMED should focus on expanding and diversifying sales and production of its existing product, ORS, rather than offering new products or production capacities

The team then focused on creating an implementation plan for enhancing the sustainability of LAPROMED within this strategic context. They identified six broad critical areas where action was needed to place LAPROMED in a competitive position in the public sector market

- Revising the relationship between LAPROMED and USAC
- Strengthening LAPROMED's capabilities in the areas of sales and customer service
- Understanding the needs of current customers
- Adding new customers
- Reducing product cost
- Extending product shelf life

PATH submitted a proposal to BASICS in December 1997 for an eight-month technical assistance project to further strengthen LAPROMED's sustainability through activities focused on these six objectives. The project was approved in January 1998, and initial trips by Mr Hamer and Mr Brooke were completed in early February 1998. Mr Brooke completed a mid-project monitoring visit in May 1998.

During the February 1998 visits, workplans were established with LAPROMED and two local consulting organizations to achieve the objectives. The consulting organizations are

- CALTEC Internacional, Mr Eduardo Calderon, President. Responsible for customer service function training at LAPROMED, leading to development of a customer service plan
- OSMOSIS, Mr Carlos Anzueto, President. Responsible for conducting a market assessment update to help better understand needs and opportunities in the NGO and public sector markets for ORS in Guatemala

IV TRIP ACTIVITIES

Planning, monitoring, and informational update sessions were held throughout the week of August 17, 1998. A summary of these activities is presented below, with a list of contacts included as Appendix D.

- Upon arrival, Mr. Brooke met with LAPROMED management to review the current situation and finalize the schedule for the week. He also met with Mr. Calderon to discuss Mr. Calderon's view of LAPROMED's progress and with Dr. Anabella Sanchez of USAID to review overall technical assistance progress.
- A meeting was held at USAC with Dr. Miquel Rodenas, Joint Secretary to Dr. Efrain Medina, Rector (President) of USAC.
- The same attendees then met with Dr. Hermelindo Arevalo and Dr. Mynor Bracamonte, senior staff members of the Finance Department at USAC.
- Mr. Calderon led an extensive planning and brainstorming session on strategies and steps for improving customer service and revising LAPROMED's relationship with USAC. This session was held in the offices of the School of Pharmacy and had active participation by the new Dean. Other attendees included Mr. Luis Galvez (now of P&CSF), Dr. Alba Nory de Barrera, Chief of LAPROMED, Dr. Elida Valdez, Director, EDC, and Mr. Brooke.
- Mr. Brooke spent considerable time with LAPROMED production staff creating a comprehensive spreadsheet analysis of the current order backlog and order rate for *SueroVida*.
- Mr. Brooke, Mr. Calderon, and EDC/LAPROMED management reviewed options and obstacles for increasing production of *SueroVida* to meet increasing demand.
- At the end of the week, Mr. Brooke met with Dr. Baudilio Lopez of USAID Guatemala to review project status and discuss final wrap-up steps.

V. FINDINGS, RESULTS, AND ISSUES FOR THE FUTURE

The following findings, results, and issues for the future are organized according to the six key objectives of this technical assistance project

Objective Revise Relationship with USAC

Results

EDC/LAPROMED management, Mr Calderon, and Mr Brooke met with the Dean of P&CSF, the Adjunct Secretary representing the Rector (Dean), and senior staff of the Finance Office of USAC to discuss the opportunity to further ensure LAPROMED's sustainability by revising the financial and administrative relationship between EDC/LAPROMED and USAC

Two important changes have occurred in the USAC School of Pharmacy and Chemical Sciences Dr Hada Alvarado has been elected Dean and has so far taken a proactive, positive role in the LAPROMED organization development process led by Mr Calderon In addition, Mr Luis Galvez, most recently the Chief of Production at LAPROMED, has been tapped by the new Dean to become an administrative official in the school LAPROMED now has excellent support from the School of Pharmacy, which will help in both allocation of resources for LAPROMED activities and lobbying for broad changes in the financial and administrative relationship between EDC/LAPROMED and USAC

While a specific revision of the relationship between EDC/LAPROMED and USAC has not been accomplished during this technical assistance project, it is clear that (1) EDC/LAPROMED management and Mr Calderon have succeeded in greatly increasing the awareness of the success of LAPROMED by key officials at USAC, and (2) efforts are underway which will lead to increased financial and administrative autonomy of revenue generating programs, such as LAPROMED, at USAC

Issues for the Future

For the near term, LAPROMED's greatest challenge with USAC will be in getting the raw materials and human resources to support a production rate increase With the increasing demand for *SueroVida* and the reduced costs of raw materials, the USAC fee component of *SueroVida* cost is no longer the most immediate issue of concern between LAPROMED and USAC As shown in the cost analysis, LAPROMED can now likely compete relatively well on price, even under the current financial relationship In the long term, however, this system still unfairly distorts LAPROMED's cost and pricing calculations and could again lead to a situation where LAPROMED becomes uncompetitive

In essence, LAPROMED (and the EDC) operate as a cost center of USAC A more appropriate approach, although challenging to implement, would be for LAPROMED (either separately or as part of EDC) to operate on a profit center basis, with guided self-control over revenues, expenses, and certain types of equipment and facilities investment decisions Instead of sharing a fixed percentage of revenue with USAC, LAPROMED would share a significant portion of its profit

with USAC Based on discussions with USAC officials, this type of approach is being considered for future administrative/financial relationships between USAC and certain revenue generating programs such as LAPROMED As with many processes within USAC, it may take considerable time to develop and implement such changes

Objective Strengthen Customer Service Functions

Results

Mr Calderon's work has helped EDC/LAPROMED management develop a mission and vision for LAPROMED that integrate customer service as a key aspect of all LAPROMED activities (See Appendix A, LAPROMED Customer Service Function Final Report)

Customer Service training will now be included as part of the curriculum taught to the pharmacy students who serve internships in LAPROMED

A Service Quality Manual has been developed and will be implemented

A plan for addition of some critical customer service related resources has been developed and agreed upon by EDC/LAPROMED management and the Dean of P&CSF (See Action Plan in Appendix A)

Issues for the Future

The challenge for LAPROMED will be in implementing a true customer service function on a day-to-day operating level Training the students in good customer service attitudes and procedures can be accomplished without much additional effort, but actually creating and staffing a customer service system within LAPROMED will take a significant ongoing commitment from LAPROMED, EDC, and USAC

Given the current production backlog, it may seem tempting to throw all resources toward the production issues and ignore (or delay) implementation of customer service systems This would be an unfortunate mistake To seize the opportunity it now faces (rapidly increasing demand), LAPROMED must improve all of its business processes that create satisfied customers, including both production and customer service Otherwise, just as LAPROMED increases production, it may find orders decreasing due to customer dissatisfaction

Objective Understand Needs of Current Customers

Results

Mr Anzueto's assessment of the public sector market for ORS in Guatemala provided EDC/LAPROMED management with important feedback on *SueroVida*'s recognition in the market, as well as the desires of the Health Areas regarding customer service Mr Anzueto's final report is included as Appendix B

LAPROMED management has initiated more frequent discussions with the central offices of MSPAS. Both have expressed a desire to keep more closely in contact to monitor the requirements for and deliveries of *SueroVida*, as this relates to MSPAS programs, the prevalence of diarrheal diseases, and the status of outbreaks of cholera.

Issues for the Future

Since LAPROMED does not have much face-to-face interaction with its key customers (Health Areas), it is critical for LAPROMED to seek periodic customer feedback. LAPROMED should plan, on at least a biannual basis, to contract an outside party to conduct a comprehensive update assessment of the perceptions and plans of key public sector buyers of ORS.

Objective Increase Customer Base

Results

With assistance from Mr. Calderon, LAPROMED management have made initial efforts to strengthen LAPROMED's sales in the NGO market, resulting in orders from at least five new customers.

At the same time, the rapid increase in demand from LAPROMED's current customer base has created a significant production backlog. Until this situation is resolved, LAPROMED would not likely be in a position to provide good service to a large number of new customers.

Issues for the Future

Any further efforts toward this objective first should be carefully linked to resolving the production backlog through increased production.

Objective Reduce Product Cost

Results

LAPROMED staff have identified and qualified an alternative, lower cost supplier of raw materials and have begun ordering from this supplier as current inventories are depleted. In addition, they have completed the analytical work necessary to allow the change from powdered glucose to granular glucose, a move which will save additional cost and improve product performance (easier dissolution and/or reduced clumping).

PATH estimates that these changes will result in nearly a 27 percent reduction in the variable cost of raw materials in *SueroVida*. Detailed cost spreadsheet summaries showing the impact of the lower cost raw materials are provided in Mr. Hamer's August 12, 1998, memorandum (Appendix E). The overall result, for example, at a production volume of 1.5 million sachets, is that LAPROMED's full cost of production will fall from 96 to 76 quetzales per sachet—about US\$ 12 at an exchange rate of 6.3Q to US\$1. Since LAPROMED has traditionally chosen to price its products at cost of production, in 1999 it should be able to match or beat the previous

bids of 75 quetzales offered by local competitors, even without revision of the LAPROMED/USAC financial relationship. This assumes 1999 annual production/sales at slightly over 1.5 million sachets—a level LAPROMED should achieve in 1998.

Issues for the Future

LAPROMED should institute a program of periodic review of alternative sources of key raw materials, such as glucose and packaging foil, to ensure that it is always obtaining the best possible prices.

As noted in the discussion of the LAPROMED/USAC financial relationship, while there is less immediate need to alter the structure of the USAC fee paid by LAPROMED, this structure still distorts the calculation of the production costs of *SueroVida*.

Objective: Extend Product Shelf Life

Results

LAPROMED staff have completed the analytical and regulatory work necessary to extend *SueroVida*'s shelf life to three years, and this new three-year shelf life is now printed on all *SueroVida* sachets.

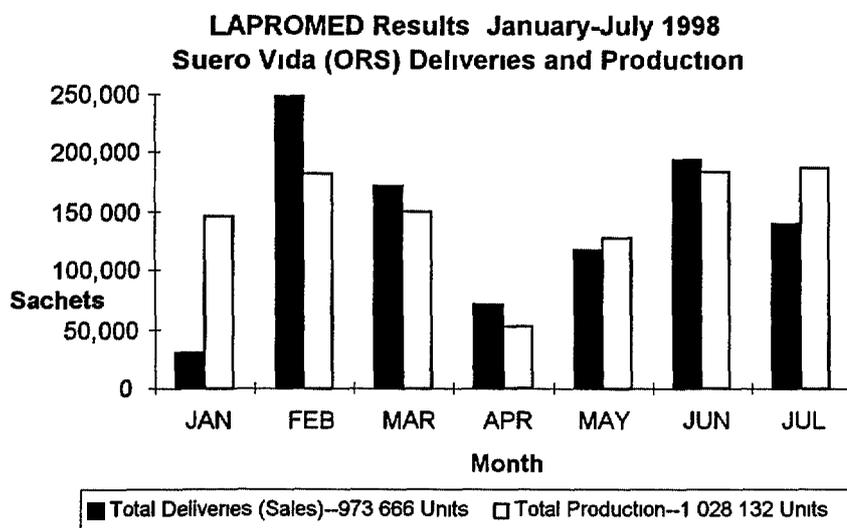
Issues for the Future

With the change to the granular form of glucose, which is less likely to cake in the sachet, LAPROMED may have an opportunity to obtain an even longer shelf life for *SueroVida*. LAPROMED should initiate the proper stability studies, which, if successful, could eventually lead to a four-year shelf life for *SueroVida*. Further extending shelf life will have additional customer benefits and will allow LAPROMED additional flexibility in building an inventory.

Additional Key Issues Facing LAPROMED

Orders Outpacing Production, Creating Significant Production Backlog

Updated 1998 LAPROMED production and sales volumes through July are shown in the table below. The production decrease shown in April and May was due to temporary unavailability of packaging materials.



What is not shown in this chart is the growing production backlog now facing LAPROMED. After Mr. Brooke worked with LAPROMED management to analyze the rate of new orders and production of *SueroVida* during 1998, it became apparent that LAPROMED was facing a “crisis of opportunity.” During the six weeks between July 13 and August 23, 1998, LAPROMED received orders for 936,565 sachets of *SueroVida*—an average of 156,000 sachets a week, and a total amount nearly exceeding all orders for 1997. Total order backlog, as of August 23, exceeded one million sachets. The detailed spreadsheets for Order Backlog and Order Rate created by Mr. Brooke and LAPROMED production staff are provided in Appendix F.

At the time of Mr. Brooke’s May 1998 visit, LAPROMED had a production backlog of around 300,000 sachets of *SueroVida*, which it stated it could clear by July. Other than a single, very large order that created this initial backlog, the rate of orders during the first five months of 1998 stayed within LAPROMED’s approximate monthly peak production capacity of around 200,000 sachets. Sometime in June or early July, however, the rate of orders began to build. This was likely a result of the onset of the rainy (diarrheal) season and also could be a sign that the Ministry of Health’s new program to increase distribution of ORS through NGOs is taking hold, thus leading to the one million unit backlog.

To put this into perspective, LAPROMED’s typical peak production rate under its current schedule averages just around 50,000 sachets a week, or 200,000 sachets per month. Even if no new orders are received (an unrealistic view), it will take LAPROMED up to five months at current production rates to fill these orders.

During Mr. Brooke’s visit, LAPROMED management agreed to

- Develop and implement a plan to at least marginally increase production by increasing lot size or adding a fifth day of production during the week.

- Communicate clearly to various individual Health Area customers that orders will not be able to be filled immediately
- Hold a frank and open dialog with the Ministry of Health regarding the backlog situation
- Be prepared to recommend, if necessary, that the Ministry of Health procure ORS from other sources to supplement the supply provided by LAPROMED

The production backlog should be LAPROMED's priority issue for the coming months. No other issue, other than poor product quality (not a significant concern, since LAPROMED has demonstrated consistent adherence to good manufacturing practices and consistent product quality), poses a greater potential threat to LAPROMED's ability to retain lead supplier position in the public sector market in Guatemala.

The quickest way for LAPROMED to increase production is by increasing the utilization of its current production equipment, either through increasing batch size or extending filling operations, or both. Any increase in production rates, however, also impacts many other areas of LAPROMED operations, such as materials procurement and quality control, and will take a concerted effort to implement.

If the recent increase in orders can be shown to reflect a true increase in demand (and preliminary evidence suggests it does), then LAPROMED may need to consider procurement and installation of a second filling machine, since this is currently the rate limiting step in its production operations. Even if quickly initiated, this process would take many months to positively impact production rates, therefore, clearly, LAPROMED must expect to be in this backlog situation until well into 1999 and must develop ways to manage it, for example, through negotiating partial shipments with customers.

Long-Term Sustainability of LAPROMED

The major, broad objective of this USAID-funded technical assistance project has been to improve the long-term sustainability of LAPROMED, with the primary emphasis placed on LAPROMED's role as key supplier of ORS to the public sector in Guatemala. While much progress has been made, it is important to note that regardless of the outcome of this or any future technical assistance, LAPROMED's ability to react quickly to changing conditions in the external competitive environment of the ORS market will continue to be constrained by its status as a training program of USAC.

This is not to question LAPROMED's important purpose as a training program, nor its existence as part of USAC. In fact, it is unlikely that LAPROMED could be a self-sustaining organization if it were spun off into a private enterprise. Producing ORS for public sector markets at competitive prices simply does not provide enough profit to support an entire stand-alone entity. Even producing and marketing ORS in the public and private sectors of both domestic and export markets is, in general, such a competitive activity, that it is not profitable enough to sustain a stand-alone entity. Entities that have long-term, stand-alone sustainability to produce and market

ORS almost always have a broad array of complementary products, which allows sharing of administrative, manufacturing, and promotional costs. Although LAPROMED produces additional products, these are not significant from the public health or revenue generation perspective.

In fact, LAPROMED is currently able to sustainably supply ORS to the Guatemalan public sector at prices within reasonable range of international benchmarks precisely because it exists within the support structure of USAC and the Faculty of Pharmacy and Chemical Sciences. This support structure provides relatively skilled, motivated production and laboratory staff at no cost (student interns), as well as “up-front” payment of salaries of management staff and provision of various utilities, facilities, etc. (LAPROMED effectively reimburses and sometimes “overpays” USAC for these up-front payments via the 20 percent of sales revenue that is returned to USAC.)

While some aspects of being associated with USAC can, in the short term, seem like impediments to progress, in PATH’s opinion, LAPROMED’s long-term sustainability can only be ensured if it remains a training program within some structure of USAC. LAPROMED’s primary mission is to provide a training program, its secondary mission is to supply product to public sector markets. In serving this dual mission, LAPROMED should not strive (nor would it be appropriate) to become an aggressive, private sector type of organization. Nonetheless, some basic business practices must be adopted to effectively and competitively serve the secondary mission of product supply.

The realistic need for LAPROMED to continue to exist as a training program within the USAC structure has implications for any future outside technical assistance. PATH believes that LAPROMED’s ORS production is an appropriate target for some level of continued outside technical assistance for the following reasons:

- LAPROMED produces a quality ORS product using good manufacturing practices
- LAPROMED can, under current and foreseeable future conditions in the public sector market, produce and sell at prices that are reasonably competitive with international benchmarks
- LAPROMED serves an important training function, which might not otherwise exist in Guatemala

At the same time, PATH believes that it would be unrealistic for either LAPROMED or an outside supporter of LAPROMED to spend resources pursuing objectives such as:

- Major expansion of LAPROMED’s ORS production capacity, with the hope of serving markets outside of LAPROMED’s core market in the public sector of Guatemala. (Note that some level of capacity expansion to serve LAPROMED’s core market may be appropriate.)
- Developing an extensive sales and marketing capacity beyond what is appropriate to serve its core market
- Developing the capacity of LAPROMED to be “spun off” from USAC into some form of private entity

APPENDIXES

APPENDIX A

**AUGUST 12, 1998, MEMORANDUM FROM MERVYN HAMER
TO STEVE BROOKE ON LAPROMED COST ANALYSIS**

Memorandum

Date August 12, 1998 **Distribution**

To Steve Brooke

From Merv Hamer 

Subject LAPROMED Product Cost Analysis

In order for LAPROMED to set an appropriate price for their oral rehydration salts product, *SueroVida*, they must have an accurate model for their actual cost of production. While the selling price set may be somewhat independent of the manufacturing cost, the price should be sufficient to at least recover all of the real costs of production to ensure continued sustainability. However, because LAPROMED is a hybrid institution, having aspects of both educational and commercial interests, assignment of "real" production costs has been problematic. In particular, LAPROMED's costs for labor, utilities, taxes, and depreciation are not reflective of true commercial costs because

- They utilize USAC students for much of the direct labor, for which the students are not paid. Also, the chief of production position is paid directly by USAC and does not appear on the LAPROMED (EDC) payroll.
- Utility costs for the entire facility are blended with the biomedical clinic that shares the facility with LAPROMED.
- The tax status of LAPROMED as an educational institution is favorable in comparison with a commercial business.
- As most of LAPROMED's equipment was donated through USAID, depreciation is not a true cost. However, it may be wise to impute a depreciation cost to account for eventual replacement of the equipment.

When the original project to equip LAPROMED and start production of ORS was completed, PATH staff created a comprehensive cost spreadsheet that assumed full costs of depreciation and a 20 percent USAC fee. In fact, since the USAC fee is calculated as 20 percent of the final selling price of *SueroVida*, it is actually equivalent to a 25 percent markup on the production cost of the product.

Memorandum to Steve Brooke

August 12, 1998

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As part of our technical assistance project, I undertook a specific effort to evaluate mechanisms for lowering product cost, which would thereby allow LAPROMED to maintain a competitive price in the market. Three areas for cost reduction were evaluated:

- Materials
- Indirect, "imputed" costs
- The USAC fee

In the materials area, LAPROMED has been able to identify alternate sources of quality materials meeting USP specifications for significantly lower costs. In the indirect area, LAPROMED had, as of late 1997, already removed the majority of the equipment depreciation expense from their cost calculation for price setting. The USAC fee is still being negotiated with USAC officials.

As shown in the attached spreadsheets, the net effect of the significant changes in raw materials costs will result in close to a 27 percent reduction in the variable cost of raw materials in *SueroVida*. The overall result, for example, at a production volume of 1.5 million sachets, is that LAPROMED's cost of production will fall 20 percent, from 96 to 76 quetzales.

Even without revision of the LAPROMED/USAC financial relationship, LAPROMED's cost of production will be able to match or beat any previous bids offered by local competitors, given sufficient production volumes. Clearly, if the USAC fee can be restructured to properly reflect economies of scale and the relatively fixed nature of the LAPROMED costs covered out of USAC general funds, this will give LAPROMED additional flexibility on pricing to remain competitive.

Attachment 2 Spreadsheets

mhmp10296.doc

ESTIMACION DE COSTOS DE SALES DE REHIDRATAACION ORAL (SRO - Citrato)

Estimate using higher cost raw materials

			Annual Production Volumes		
			1,000,000	1,500,000	2,000,000
COSTO DE MATERIA PRIMA:	US\$/kg	g/sobre	US\$/sobre	US\$/sobre	US\$/sobre
Cloruro de Sodio	1.88525	3 5	0.00660	0 00660	0 00660
Cloruro de Potasio	5.92623	1 5	0 00889	0 00889	0 00889
Citrato Trisodico, dih	2.34426	2 9	0 00680	0 00680	0 00680
Glucosa, anhidra	1.83607	20 0	0 03672	0 03672	0 03672
		-----	-----	-----	-----
Factor de Perdida	2.00%	27 9	0 05901	0 06	0 06
			0 00118	0 00118	0 00118
COSTO TOTAL DE QUIMICOS			0 06019	0 06	0 06
ALUMINIO LAMINADO	9 62906	2 37	0.02282	0 02282	0 02282
Factor de Perdida	5.00%		0 00114	0 00114	0 00114
COSTO TOTAL DEL LAMINADO.			0 02396	0 02	0 02
COSTO DE MATERIALES DE EMPAQUE:					
Caja + Transporte			0 00364	0 00364	0 00364
Factor de Perdida	2 00%		0 00007	0 00007	0 00007
COSTO TOTAL DE MATERIALES DE EMPAQUE..			0 00371	0 00	0 00
COSTO TOTAL DE MATERIALES			0 08786	0 09	0 09
			=====	=====	=====
COSTOS DE MANUFACTURA					
Suposiciones: (Hipotesis)					
Tamano de Lote (sobres	11,250		1,000,000	1,500,000	2,000,000
Rendim. maquina (sob/ano)			0 01077	0 00718	0 00269
Trabajadores	9		0 00000	0 00000	0 00000
Supervision	1		-----	-----	-----
COSTO TOTAL DE MANO DE OBRA DIRECTA			0 01077	0 00718	0 00269
COSTOS INDIRECTOS					
Depreciacion de Activos			0 00527	0 00352	0 00264
Personal de Control de Calidad			0 01795	0 01197	0 00476
Otro personal indirecto			0 00000	0 00000	0 00043
Servicios			0 00034	0 00024	0 00021
Gastos indirectos de fabricacion			0 00204	0 00267	0 00363
COSTO TOTAL INDIRECTO			0 02560	0 01840	0 01166
COSTO TOTAL DE MANUFACTURA			0 12424	0 11344	0 10221
			=====	=====	=====
ADMINISTRACION					
Administracion			0 00000	0 00000	0 00000
Factor de Devaluacion (%)			4 0%	3 8%	3 7%
Valor Acumulado de Devaluacion			0 00476	0 00857	0 01145
COSTO TOTAL en \$ US			0 12899	0 12201	0 11366
			=====	=====	=====
COSTO TOTAL en Quetzales	6 30		0 81	0 77	0 72
26-Sep-98	14 24 39		=====	=====	=====
*****	*****	*****	*****	*****	*****
	COSTO BASICO		0 81	0 77	0 72
Mas el costo adicional d	+ 25% USAC FEE		0 20	0 19	0 18
	TOTAL COSTO EN QUETZ		1 01	0 96	0 90

NOTA EL 25% DE COSTO EQUIVALE AL 20% QUE LA USAC RETIENE

Additional note: Certain supervisory, utilities, and administrative costs are paid out of the USAC fee revenue and are therefore listed at "0" cost in the spreadsheet

ESTIMACION DE COSTOS DE SALES DE REHIDRATACION ORAL (SRO - Citrato)

Estimate using new, lower cost raw materials

		Annual Production Volumes		
		1,000,000	1,500,000	2,000,000
COSTO DE MATERIA PRIMA:	US\$/kg g/sobre	US\$/sobre	US\$/sobre	US\$/sobre
Cloruro de Sodio	0 88250 3 5	0 00309	0 00309	0 00309
Cloruro de Potasio	1 50000 1 5	0 00225	0 00225	0 00225
Citrato Trisodico, dih	2 04300 2 9	0 00592	0 00592	0 00592
Glucosa, anhidra	1 21000 20 0	0 02420	0 02420	0 02420
	-----	-----	-----	-----
Factor de Perdida	2 00% 27 9	0 03546	0 04	0 04
		0 00071	0 00071	0 00071
		-----	-----	-----
COSTO TOTAL DE QUIMICOS ..		0 03617	0 04	0 04
ALUMINIO LAMINADO	9 62906 2 37	0 02282	0 02282	0 02282
Factor de Perdida	5 00%	0 00114	0 00114	0 00114
		-----	-----	-----
COSTO TOTAL DEL LAMINADO		0 02396	0 02	0 02
COSTO DE MATERIALES DE EMPAQUE				
Caja + Transporte		0 00364	0 00364	0 00364
Factor de Perdida	2 00%	0 00007	0 00007	0 00007
		-----	-----	-----
COSTO TOTAL DE MATERIALES DE EMPAQUE		0 00371	0 00	0 00
COSTO TOTAL DE MATERIALES		0 06384	0 06	0 06
		=====	=====	=====
COSTOS DE MANUFACTURA				
Suposiciones: (Hipotesis)				
Tamano de Lote (sobres 11,250)		1,000,000	1,500,000	2,000,000
Rendim maquina (sob/ano)				
Trabajadores 9		0 01077	0 00718	0 00269
Supervision 1		0 00000	0 00000	0 00000
		-----	-----	-----
COSTO TOTAL DE MANO DE OBRA DIRECTA		0 01077	0 00718	0 00269
COSTOS INDIRECTOS				
Depreciacion de Activos		0 00527	0 00352	0 00264
Personal de Control de Calidad		0 01795	0 01197	0 00476
Otro personal indirecto		0 00000	0 00000	0 00043
Servicios		0 00034	0 00024	0 00021
Gastos indirectos de fabricacion		0 00204	0 00267	0 00363
		-----	-----	-----
COSTO TOTAL INDIRECTO		0 02560	0 01840	0 01166
COSTO TOTAL DE MANUFACTURA		0 10022	0 08942	0 07819
		=====	=====	=====
ADMINISTRACION				
Administracion		0 00000	0 00000	0 00000
Factor de Devaluacion (%)	4 0%		3 8%	3 7%
Valor Acumulado de Devaluacion		0 00380	0 00670	0 00869
COSTO TOTAL en \$ US		0 10401	0 09612	0 08688
		=====	=====	=====
COSTO TOTAL en Quetzales	6 30	0 66	0 61	0 55
26-Sep-98	14 26 57	=====	=====	=====
*****	*****	*****	*****	*****
	COSTO BASICO	0 66	0 61	0 55
Mas el costo adicional d	+ 25% USAC FEE	0 17	0 15	0 14
	TOTAL COSTO EN QUETZ	0 83	0 76	0 69

NOTA EL 25% DE COSTO EQUIVALE AL 20% QUE LA USAC RETIENE
 Additional note Certain supervisory, utilities, and administrative costs are paid out of the USAC fee revenue and are therefore listed at "0" cost in the spreadsheet

APPENDIX B

ORDER BACKLOG AND ORDER RATE SPREADSHEETS FOR *SUEROVIDA*

"Order Backlog" de Suero Vida

Order Backlog Summary--

Time of Original Orders	Remaining Orders to be filled
From 1997	170,000
Jan June 1998	10,250
July 1998	412,757
August 1998	411,528
Total Orders To Be Filled	1,004,535

Order Backlog Detail--

	Fecha	Existencia Bodega	Institucion	Fecha Solicitud	Cantidad Solicitada	Fecha Aprox Entrega	Fecha de Entrega	Cantidad Entregada	Saldo	Observaciones
20	14 Jul 98	#VALUE!	Jef Area Sacatepequez	25-Nov 97	72 800				72 800	
21	14 Jul 98	#VALUE!	Jef Area Alta Verapaz	15-Dic 97	76 300				76 300	
19	14 Jul 98	#VALUE!	Jef Area San Marcos	15-Dic 97	20 800				20 800	
									170 000	
24	17 Jul 98	#VALUE!	Txolja Comitancillo San Marcos	01 Jun 98	20 250		17-Jul-98	10 000	10 250	Confirmar para cuando el 3-8 98
									10 250	
7	13-Jul 98	#VALUE!	IGSS Mazatenango	09-Jul 98	14 000	20 Jul 98		7 050	6 950	Vienen el 21/7/98
8	13-Jul 98	#VALUE!	Jef Area Quiche	14 Jul 98	9 800	05-Ago-98	13-Ago-98	2 250	7 650	Confirmar para cuando el 22/7/98
			Area Ja'apa	14-Ago-98	100 000				100 000	
34	21 Jul 98	#VALUE!	Jef Area Suchitepequez	16-Jul 98	15 000	27-Jul 98	28-Jul-98	6 400	9 600	
26	17 Jul 98	#VALUE!	Asoc De Desarrollo ADRIM	17-Jul 98	11 140	10-Ago-98			11 140	
25	17 Jul 98	#VALUE!	Asoc De Desarrollo Los Diamantes	17-Jul 98	32 117	10-Ago-98			32 117	Confirmar envio el 3-8 98
29	20-Jul 98	#VALUE!	Prog De Aten Prim De Salud PAPS GTZ	20-Jul 98	1 350				1 350	
33	21-Jul 98	#VALUE!	Aso Tetz Quatanun	21 Jul 98	10 000	13-Ago-98			10 000	Llamar para avisarles cuando
32	21-Jul 98	#VALUE!	Jef Area Chimaltenango	21 Jul 98	11 250	13-Ago-98			11 250	Llamar para avisarles
42	19-Ago-98	#VALUE!	Agucatan Huehuetenango	24-Jul-98	33 000	10-Ago-98			33 000	
43	19-Ago-98	#VALUE!	IGSS Chiquimula	24-Jul 98	500				500	
46	19-Ago-98	#VALUE!	Jef Area Asuncion Mita Jutiapa	27-Jul 98	10 000	27 Ago-98			10,000	
45	19-Ago-98	#VALUE!	Jef Area Baja Verapaz	27-Jul 98	30 000	05-Sep-98			30 000	
44	19-Ago-98	#VALUE!	SDRYS Quetzaltenango	27-Jul 98	31 500	18-Ago-98			31 500	

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47	19 Ago-98	#VALUE!	Jef Area Amatitlan	28 Jul 98	20 000			20 000	
48	19 Ago 98	#VALUE!	Jef Area Quetzaltenango	28-Jul 98	50 000	17 Ago-98		50 000	
49	19 Ago-98	#VALUE!	Jef Area Chimaltenango	29 Jul 98	11 700	18-Ago-98		11 700	
50	19 Ago 98	#VALUE!	Jef Area Guatemala Norte	29 Jul 98	36 000	17 Ago-98		36 000	
								412 757	
51	19 Ago-98	#VALUE!	Coop Integral Agricola Jutiapa	03-Ago-98	10 600	19 Ago-98		10 600	
36	04 Ago-98	#VALUE!	Hosp IGSS Escuintla	04 Ago-98	4 500		04 Ago-98	1 250	pendientes de fabricar
52	19 Ago-98	#VALUE!	Quiche	04 Ago-98	1 350	20-Ago-98		1 350	
53	19 Ago-98	#VALUE!	Jef Area Escuintla	05-Ago-98	20 000	21 Ago-98		20 000	
54	19 Ago-98	#VALUE!	Jef Area Guatemala-Sur	10-Ago-98	10 000	24-Ago-98		10 000	
55	19 Ago-98	#VALUE!	Jef Area Retalhuleu	10-Ago-98	20 000	25-Ago-98		20 000	
57	19 Ago-98	#VALUE!	Fundacion Guacamaya	11 Ago-98	15 000	27 Ago 98		15 000	
56	19-Ago-98	#VALUE!	Jocoten Chiquimula Parr Santiago	11 Ago-98	25 000	28-Ago-98		25 000	
58	19-Ago-98	#VALUE!	Jef Area Peten Sur-Oriental	12-Ago-98	10 000	04 Sep-98		10 000	
59	19 Ago-98	#VALUE!	Funmayan Coban	13-Ago-98	5 000	20-Ago-98		5 000	
60	19 Ago-98	#VALUE!	Jef Area Sayaxche Peten	13-Ago-98	10 000			10 000	
61	19-Ago-98	#VALUE!	IGSS Santa Lucia Cotz	17 Ago-98	1 350	03-Sep-98		1 350	
62	19-Ago-98	#VALUE!	Sas Flor Campesina Jutiapa	17-Ago-98	5 400			5 400	
	19 Ago-98		CEIBAS	17 Ago-98	131 778			131 778	
	19-Ago-98		Area Salud Santa Rosa	19-Ago-98	29 400			29 400	
	19 Ago-98		Area Salud Amatitlan	19/08/1998	40 000			40 000	
	21 Ago-98		Hospital Regional Quetzaltenango	19-Ago-98	4 000			4 000	
	21 Ago-98		Jefa Area Quetzaltenango	21 Ago-98	40 000			40 000	

New Order Rate Analysis de Suero Vida

New Order Rate Summary--

New orders placed each week since mid July

Week	Weekly Total New Orders
July 13 19	220,497
July 20 26	91,940
July 27 Aug 2	189,200
Aug 3 9	56,850
Aug 10 16	95,300
Aug 17 23	252,778 not yet complete week
Total Orders	936,565
Number of Week	6

Average Orders

Par Week 156,094

New Order Rate Detail--

	Fecha	Existencia Bodega	Institución	Fecha Solicitud	Cantidad Solicitada	Fecha Aprox. Entrega	Fecha de Entrega	Cantidad Entregada	Saldo	Observaciones
9	13-Jul 98	#REF!	Medicina	13-Jul 98	6 000	23-Jul 98		5 000	0	Llamar para avisarle el 22/7/98
8	13-Jul 98	#REF!	Jef Area Quiche	14-Jul 98	9 900	05-Ago-98	13-Ago-98	2 250	7 650	Confirmar para cuando el 22/7/98
10	14-Jul 98	#REF!	IGSS Escuintla	14-Jul 98	3 000	17-Jul 98	24-Jul-98	3 000	0	
11	14-Jul 98	#REF!	IGSS Periferica Zona 5	14-Jul 98	1 350	17-Jul 98	23-Jul 98	1 350	0	
12	14-Jul 98	#REF!	Hospital Roosevelt	14-Jul 98	3 000	23-Jul 98	17 Ago-98	3 000	0	
13	14-Jul 98	#REF!	Jef Area El Progreso	14-Jul 98	5 000		14-Jul 98	5 000	0	
14	14-Jul 98	#REF!	Jef Area Zacapa	14-Jul 98	5,400		14-Jul 98	5 400	0	
15	14-Jul 98	#REF!	Jef Area Santa Rosa	14-Jul 98	5 000	15-Jul 98	15-Jul 98	5 000	0	
16	14-Jul 98	#REF!	Jef Area Jalapa	14-Jul 98	100 000				100 000	Entregar por lo menos 25 000
17	14-Jul 98	#REF!	ONG Parcelamiento La Maquina	14 Jul 98	1 500		14-Jul-98	1 500	0	Comite Pro-mejoramiento La Maquina R
22	15-Jul 98	#REF!	Despacho Lapromed	15-Jul 98	450		15-Jul-98	450	0	
23	15-Jul 98	#REF!	Hospital Nac Cullapa	15-Jul 98	500	15-Jul 98	17-Jul-98	500	0	
34	21-Jul 98	#REF!	Jef Area Suchtepequez	16-Jul 98	15 000	27-Jul-98	28-Jul 98	5 400	9 600	
25	17-Jul 98	#REF!	Asoc De Desarrollo Los Diamantes	17-Jul-98	32 117	10-Ago-98			32 117	Confirmar envio el 3 -8 98
26	17-Jul 98	#REF!	Asoc De Desarrollo ADRIM	17-Jul-98	11 140	10-Ago-98			11 140	
27	17-Jul 98	#REF!	Area salud de Suchtepequez	17-Jul 98		23-Jul-98			0	
28	17-Jul 98	#REF!	ASDHI	17 Jul 98	10 440	17 Jul-98	17-Jul-98	10 440	0	
3	13-Jul 98	#REF!	Jef Area Huehuetenango	19-Jul 98	11 700	13-Jul-98	13-Jul 98	11 700	0	Enviar factura para cobro
					220 497					
29	20-Jul 98	#REF!	Prog De Aten Pnm De Salud-PAPS GTZ	20-Jul 98	1 350				1 350	
30	20-Jul 98	#REF!	Jef Area Guatemala-Sur	20-Jul-98	10 000	02 Ago-98	20/07 10/8/98	10 000	0	

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31	20-Jul-98	#REF!	Jef Area Jalapa	20-Jul-98	5 400	21 Jul 98	22 Jul 98	5 400	0	
32	21 Jul 98	#REF!	Jef Area Chimaltenango	21-Jul-98	11 250	13-Ago-98			11 250	Llamar para avisarle
33	21-Jul-98	#REF!	Aso Tetz Quatanun	21 Jul 98	10 000	13-Jul-98			10 000	Lamar para avisarles cuando
1	13-Jul-98	198 916	ASDHI	24-Jul-98	20 440	14-Jul-98	06-Jul-98	10 000	0	
42	19-Ago-98	186 916	Aguacatan Huehuetenango	24-Jul-98	33 000	10-Ago-98			33 000	
43	19-Ago-98	186 916	IGSS Chiquimula	24-Jul-98	500				500	
					91 940					
44	19-Ago-98	186 916	SDRYS Quetzaltenango	27-Jul-98	31 500	18-Ago-98			31 500	
45	19-Ago-98	186 916	Jef Area Baja Verapaz	27-Jul-98	30 000	05-Sep-98			30 000	
46	19-Ago-98	186 916	Jef Area Asuncion Mita Jutapa	27-Jul-98	10 000	27-Ago-98			10 000	
47	19-Ago-98	186 916	Jef Area Amatlan	28-Jul-98	20 000				20 000	
48	19-Ago-98	186 916	Jef Area Quetzaltenango	28-Jul-98	50 000	17-Ago-98			50 000	
49	19-Ago-98	186 916	Jef Area Chimaltenango	29-Jul-98	11 700	18-Ago-98			11 700	
50	19-Ago-98	186 916	Jef Area Guatemala Norte	29-Jul-98	38 000	17-Ago-98			38 000	
					189 200					
51	19-Ago-98	186 916	Coop Integral Agricola Jutipa	03-Ago-98	10 600	19-Ago-98			10 600	
35	04-Ago-98	186 916	Jef Area Jutapa	04-Ago-98	10 000		04-Ago-98	10 000	0	
36	04-Ago-98	176 916	Hoap IGSS Escuintla	04-Ago-98	4 500		04-Ago-98	1 250	3 250	pendientes de fabricar
52	19-Ago-98	175 666	Quiche	04-Ago-98	1 350	20-Ago-98			1 350	
37	05-Ago-98	175 666	Jef Area Solola	05-Ago-98	5 000		05-Ago-98	5 000	0	
53	19-Ago-98	170 666	Jef Area Escuintla	05-Ago-98	20 000	21-Ago-98			20 000	
38	06-Ago-98	170 666	Jef Area Jalapa	06-Ago-98	5 400		06-Ago-98	5 400	0	
					56 850					
54	19-Ago-98	165 266	Jef Area Guatemala Sur	10-Ago-98	10 000	24-Ago-98			10 000	
55	19-Ago-98	165 266	Jef Area Retalhuleu	10-Ago-98	20 000	25-Ago-98			20 000	
56	19-Ago-98	165 266	Jocotan Chiquimula Parr Santiago	11-Ago-98	25 000	28-Ago-98			25 000	
57	19-Ago-98	165 266	Fundacion Guacamaya	11-Ago-98	15 000	27-Ago-98			15 000	
39	12-Ago-98	165 266	ASC Jamagua	12-Ago-98	300		12-Ago-98	300	0	
58	19-Ago-98	164 966	Jef Area Peten Sur Oriental	12-Ago-98	10 000	04-Sep-98			10 000	
59	19-Ago-98	164 966	Funmayan Coban	13-Ago-98	5 000	20-Ago-98			5 000	
60	19-Ago-98	164 966	Jef Area Sayaxche Peten	13-Ago-98	10 000				10 000	
					95 300					
40	17-Ago-98	164 966	Despacho Lapromed	17-Ago-98	450		17-Ago-98	450	0	
41	17-Ago-98	164 516	IGSS Chicacao Suchitepequez	17-Ago-98	1 000		17-Ago-98	1 000	0	
61	19-Ago-98	163 516	IGSS Santa Lucia Cotz	17-Ago-98	1 350	03-Sep-98			1 350	
62	19-Ago-98	163 516	Sias Flor Campesina Jutapa	17-Ago-98	5 400				5 400	
	19-Ago-98		CEIBAS	17-Ago-98	131 778				131 778	
	19-Ago-98		Area Salud Santa Rosa	19-Ago-98	29 400				29 400	
	19-Ago-98		Area Salud Amatlan	19-Ago-98	40 000				40 000	
	21-Ago-98		Hospital Regional Quetzaltenango	19-Ago-98	4 000					
	21-Ago-98		Jefa Area Quetzaltenango	21-Ago-98	40 000					
	21-Ago-98		Jefa Area Santa Rosa	20-Ago-98	29 400					
		#REF!			282 778				282 778	
		#REF!							0	
		#REF!							0	
		#REF!	Existencia a la fecha					108 790	511 007	

2