

- PD-ABJ-658 is n 9/266

TECSUP INSTITUTIONAL ASSESSMENT

AND

STRATEGIC PLANNING PROCESS

Report Presented to:

INSTITUTE FOR ADVANCED TECHNOLOGICAL STUDIES  
(TECSUP)

USAID - Bureau for Private Enterprise  
AID/LIMA

By

Edward Aguirre, Ed.D.  
1671 Ascension Dr.  
San Mateo, CA 94402  
December, 1984

December 30, 1984

Ms. Andrea Mohn  
Bureau for Private Enterprise  
U.S. Agency for International Development  
1735 North Lynn Street (Plaza West, Room 633)  
Rosslyn, Virginia 22205

Dear Ms. Mohn:

Attached herewith is my report, pursuant to a site visit to Lima, Peru and to the Institute for Advanced Technological Studies (TECSUP) to "(1) provide immediate guidance to PRE and TECSUP on how to proceed in the short term and (2) provide longer term remedial and strategic plan recommendations to assist all parties, including AID PERU and PRE with program decisions."

This activity was authorized under Reference PIO/T 940-0082-3-301-41, Order Number MIS-1-85.

If I can be of any assistance to you in discussing the content of my findings, please feel free to contact me.

I found the opportunity to study TECSUP, to be a challenging and rewarding experience because of the significance such an endeavor can have to the industrial development of Peru.

Sincerely yours,



Edward Aguirre, ED.D.

## TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS .....	1
Part I: EXECUTIVE SUMMARY .....	2
Part II: SHORT TERM .....	6
- Narrative .....	8
- Background .....	9
- Scope of Work Elements .....	10
- Over-Arching Recommendations .....	15
Part III: LONG TERM TECSUP MASTER PLAN FOR STRATEGIC ACTION AND OPERATIONAL PLAN .....	17
- PURPOSE OF THE PLAN .....	17
- TYPES OF ORGANIZATIONAL PLANNING .....	17
Operational Planning .....	17
Strategic Planning .....	17
* Step one: Develop an Effective Planning Organization .....	18
* Step two: Establish a Planning Format .....	18
* Step three: Define the Organization's Domain..	18
* Step four: Set Specific Objectives .....	23
* Step five: State Basic Assumptions About Relevant Future Developments .....	23
* Step six: Devise Alternative Courses of Actions .....	24
* Step seven: Formulate Strategies .....	27
* Step eight: Analyze Risks and Resources .....	29
* Step nine: Develop an Operational Plan .....	32
* Step ten: Implement, Control, and Review ...	33
- OPERATIONAL PLAN .....	34
* Office of the Executive Director .....	34
* Department of Administration .....	40
* Department of Instruction .....	45
* Department of Promotion and Public Relations ..	50
- APPENDICES .....	55

## ACKNOWLEDGMENTS

An assessment of a pioneer endeavor such as TECSUP requires the cooperation and efforts of many individuals, I wish to express my appreciation to all of those who participated in this study.

The complex data collection and analysis efforts would have been impossible without the dedicated support of Mr. Rodolfo Beeck, the TECSUP Executive Director and his able Staff, specifically:

- Mr. Juan Vega V., Instructional Director
- Mr. Rolando Agüero B., Instructor
- Ms. Pilar Balarezo E., Librarian
- Ms. Luisa Carbo C., Secretary
- Mr. Gastón Díez Canseco, Promotion and Public Relations Director

They all helped unstintingly and cheerfully throughout the study.

I also wish to thank AID staff, particularly Andrea Mohn for her help in Washington and Ms. Norma Parker and Gerardo Arabe Paz for their assistance in Lima.

Without their cooperation and efforts this particular assignment would have proven much more difficult and probably impossible.

I truly appreciate them as well as their work.

## EXECUTIVE SUMMARY

This study reviewed and analyzed progress of the Instituto Tecnológico Superior (TECSUP, a cooperative private-sector training institute providing industrial and technical training for post-secondary students in Peru) to support AID decisions regarding its support (current, future, and its nature).

The following sections of this report expand on the background of the Institute, the findings and extensive specific recommendations for consideration by AID. This study resulted in four major conclusions:

1. TECSUP has accomplished with ingenuity and creativity the conceptualization, capital accumulation and physical plant development necessary for Phase I in establishing an educational institution. The physical plant was inaugurated on August 14, 1984, and 13 students are receiving full-time training in 1984-85.
2. High Peruvian industry representatives support TECSUP and intend to send employees for short-term training to upgrade job-related skills, given the availability of high quality training.
3. For TECSUP short courses to succeed, specific short-term industry training needs must be determined immediately so that the short courses designed address the greatest demands.
4. Parallel development of both the three-year and short-term training programs are necessary for the eventual financial viability of TECSUP. Nevertheless, TECSUP will encounter financial shortfalls in its first five years of operation.
5. TECSUP requires long-term strategic planning if it is to develop as a significant, or even a viable, institution.

## RECOMMENDATIONS

Several actions should be taken immediately to maximize effective use of the remaining PRE funds to further enhance and stabilize TECSUP.

The proposed major objective of these funds is the design, implementation and institutionalization of high-quality Short Courses (Special Programs) as an integral and on-going component of TECSUP and the immediate provision of technical assistance in educational planning and management systems. I therefore recommend initiation of the following three activities:

## SHORT-TERM (1985) PRIORITY ACTION STEPS FOR PRE

### A. SHORT COURSES

1. TECSUP should immediately begin work with Delaware Technical Community College (DTCC) to do the following:
  - a. The design and implementation of selected high quality Short Courses (Special Programs) to help generate short term cash receipts. This includes authority to conduct a needs assessment through a sample survey of Peruvian industries to determine: i) training needs, ii) types of manufacturing processes currently being used, iii) types and complexity of equipment being used, including age and condition of such equipment, iv) level of training required, and v) employee/employer training priorities that can be met through high quality Short Courses.
  - b. An assessment of availability of resources to develop the Short Courses. This would include an inventory of equipment currently available at TECSUP, the development of methodologies to be used, the materials that will be needed, the refinement of all educational packages to adapt to Peruvian conditions and needs, the assessment of faculty needs and training. DTCC would also be expected to make recommendations as to what other equipment and instructional materials must be and can be purchased within the allocated budget and time frames. The long lead times necessary to purchase and deliver equipment and the limited PRE dollars available in 1985 dictate that TECSUP and DTCC plan to maximize the use of available equipment for the initial course offerings. In addition other options for delivery of the courses should be considered. These may include the use of industries as training sites, intensive courses outside of greater Lima and other adaptations that will generate much needed income and students while assuring the highest degree of quality and industry relevance. DTCC would also be expected to make recommendations as to what other equipment and instructional materials must be and can be purchased within the allocated budget and time frames.
2. The DTCC contract should include tasks to assure ongoing assistance to TECSUP in the design, implementation and continued upgrading of high-quality courses within the short time frames projected. DTCC, in its sister institution and contractual relationship, should assume responsibility for technical assistance for the entire Short Course cycle including implementation and refinement of the offerings.

It is projected that if these steps are taken, TECSUP will have offered a minimum of 12 Short Courses by January, 1986. Six of these courses will be in place and taught by June, 1985. In addition, another 13 courses will be identified and designed with appropriate teaching materials and aids for a total of 25 courses by January 1986. As with most educational efforts, the major expenses are with the start up costs.

#### B. PLANNER

Due to the pivotal role that the next year will have on the future viability of AID's relationship to TECSUP, and the desire to transfer strategic planning skills in an effective lasting manner, PRE should make resources available to allow TECSUP to hire an educational planner. This position is a necessary step in order to create a more formal institutional planning capacity for the short as well as the long term. It is also necessary if TECSUP is to develop to its full potential and if AID/PERU is to have the needed data to consider long term developmental funding.

The planner should be a TECSUP employee and accountable to the executive director. The planner would work closely with the PRE funded strategic planning team. The functions of the planner would include but not be limited to liaison and follow-up for the executive director on activities associated with PRE funding. The total costs for this activity is estimated at \$10,000.

#### C. ADDITIONAL RECOMMENDED EQUIPMENT CONSIDERATIONS FOR 1985

Above and beyond the recommendations mentioned for continued functioning and development of TECSUP, the Institute has critical need for approximately \$400,000 more of equipment in 1985. It would be particularly beneficial for DTCC to determine specific equipment needs and to prioritize those needs. Thus, TECSUP would have guidance in what equipment to acquire as funds become available.

#### D. STRATEGIC PLANNING

PRE should immediately contract for services to provide the institutional planning technical assistance, that will meet PRE original objectives and will provide other donors especially AID/Lima with the decision data needed for assistance to TECSUP after PRE phases out. Functions to be performed include assistance in further development of the Strategic and Operational Plan and necessary management/educational subsystems. Drafts of those plans were developed during the site visit and are presented along with a description of a process for completing in Part III of this report. However, it is still only an outline of what must be accomplished in order to meet original PRE objectives and AID/Peru requirements for long-term funding. The contractor should

therefore be required to work closely with TECSUP, PRE, and AID/Peru in carrying out the scope of work. This activity is estimated to take 3-person months at an approximate cost of \$85.000.

## PART II SHORT TERM

### INTRODUCTION

The pivotal role that education will play in the future of Peru was highlighted when the five year period from 1980-1985 was declared to be the "Quinquenium of Education" for that nation. For a country of 18,000,000 persons dispersed over 496,222 square miles (almost twice the size of Texas), the natural resources and the long ocean coast-line can be developed only if sufficient technology can be introduced through the appropriate training of industrially oriented high school graduates.

In 1981, the thirty-three universities to which more than 220,000 high school students applied, accepted only 22% of the graduates. As a result, more than 156,000 graduates with secondary school diplomas could have been channeled into other forms of higher training.

Aware of this, the recently enacted Educational Law provides for the establishment of Post Secondary Technical Institutes. This effort should complement the accomplishments of the National Service for Apprenticeship and Industrial Work (SENATI) in Peru which trains specialized workers for the manufacturing industries.

Industrial and technical training for the young post secondary student have been referred to as the essential interface to develop the "practical intelligence" that is the bloodstream of any industrial or technological growth strategy within any nation. Ironically, it is often the most ignored aspect of a nation's educational continuum.

The Institute Tecnológico Superior (TECSUP) is a cooperative private sector school to fill this gap in Peru. The physical plan was inaugurated on August 14, 1984 and 13 students are now receiving classes on a full time basis. TECSUP intends to respond to the need for quality technicians by establishing a cost-effective, community affordable educational resource. They are projected to enroll by 1989, 560 three year students and an upgrading of 1,440 current technicians participating in 72 short courses. This will account for approximately 180 graduate technicians a year with a 10% drop out rate and approximately 1,440 persons receiving upgraded skills annually.

Although it is clear that the concept of building a technical institute is sound in light of Peru's long range needs, particularly within the environs of Lima where the Institute is located, the feasibility and ultimate stabilization of the concept require a careful analysis of significant variables which must be successfully orchestrated with some degree of precision. For example,

will student enrollment over time parallel the support of an adequate faculty as well as the necessary administrative costs? Will graduates of the Institute meet the market needs so that they are neither overtrained nor obsolete for the prevailing job market? Has the Institute the capacity and the infrastructure to administer a technical education program within a highly fluctuating economic environment? Is there a capability to do long range planning to project curricula and student needs based on actual market conditions? Equally important, is there, or can there be built, sufficient industrial and community confidence in the Institute so as to cause them to commit resources to it as an appropriate investment for their own industries and businesses as well as for the nation's future?

In order to put this entire effort into a pragmatic context, it is suggested that TECSUP be assessed in light of four phases that are usual to the evolution of any effort as complex as the establishment of an educational institution. Clearly, these phases are not distinct in the real world, and activities in one phase may overlap into another. However, for purposes of management analysis, it might be helpful if one were to categorize the main aspects of each of the four phases.

- \* PHASE I: Conceptualization, capital accumulation and physical plant development.
- \* PHASE II: Implementation of an operational infrastructure and the development of a strategic plan including an operational plan. Simultaneously the cataloging of core curricula for an academic three year course and the integration of a program of short term courses (special programs); enrollment of students.
- \* PHASE III: Institutionalization and/or integration as a community resource; stabilization of enrollment sources, both as individuals and as industry employees; development of strategies for capturing necessary shares of the market requiring training resources, particularly in industry. Development of structures for Patron/Donor Program to formalize efforts as a private sector initiative.
- \* PHASE IV: Evaluation Against Strategic Plan, initiation of necessary restructuring, stabilization of financial profile, modification of Strategic Plan to adjust to changing factors, technological advances and local conditions.

Assuming each of these Phases takes approximately three years each (which may overlap), TECSUP has clearly accomplished PHASE I with ingenuity and creativity. TECSUP should be commended for its abilities to truly make PHASE I a partnership between the public and private sector under extremely difficult circumstances. Such an effort could not be mounted without unusual skills or leadership.

PHASE II implies challenges of a different nature. It requires greater reliance not only on leadership but also on a larger team of individuals which in fact must provide the infrastructure for a complex organization which must assure efficient management and academic excellence. The fact that much of this requires attention to internal institutional goals does not minimize its difficulty or importance. This is the Phase TECSUP is in today. It is in fact the crucially pivotal Phase in organizational development.

PHASE III again emphasizes linkages with the external world outside the institution in order that TECSUP can be integrated as a community institution, serving community needs and also relying on community resources.

PHASE IV is the objective evaluation of the total effort, with academic and industry input reassessing the mission of TECSUP in light of changing needs and technological developments.

Although TECSUP is well aware of its time limited relationship with AID and is anxious to fulfill its implied commitments, it is also hopeful that as it evolves into a more stabilized institution that AID will continue to see its usefulness as a model for promoting industrial development through private sector participation. I concur, and also believe a documentation of its experiences can be a contemporary guide to other nations, particularly in this hemisphere, facing similar stages of industrial development.

#### NARRATIVE

With the construction of facilities and the enrollment of a class of 13 students in its pilot year, TECSUP has given evidence of making major strides toward its long range goals.

Of immediate concern to AID/PRE, however, is the importance of developing and implementing a series of short term courses for local industries in need of employee skill development or upgrading. These short term courses were an integral part of the original grant proposal awarded to TECSUP by PRE.

PRE firmly believes that this component is not only important to existing demands as expressed by local businessmen and educators, but that these short term courses are essential to a coordinated private sector initiative which assures TECSUP's long range institutional viability. Such a component would:

1. Provide immediate visibility to the practical value of TECSUP to the community, and specifically to those concerned with the maximized employment of Peruvians.
2. Provide TECSUP access to a potential pool of students who can be a source of revenue through fees and tuitions.

3. Give the administration and staff of TECSUP a more realistic database for short/long range planning by more intimate involvement with current and projected industrial needs.
4. Launch an educational service which provides the Institute flexibility to adjust their current staffing, facilities and cash flow needs.

The purpose of this assignment was to review and analyze TECSUP's progress at this time in response to PRE's desire to make significant management decisions regarding its current/future support as well as the nature of such support to TECSUP.

Some of the questions which have been surfaced are:

1. What are the factors that are causing the delays in implementing components of the PRE funded project?
2. Are there steps that can be taken by PRE to assist the Institute to better meet the expectations for this project?
3. What recommendations should be made to the Institute, based on observations and interviews, to improve the management and administration infrastructure essential to planning and implementation.
4. Has the Institute built the necessary relationships, partnerships and networks with the private sector so that the Institute is seen as an academic resource competent to train high quality technicians?

This last point is especially relevant in the industrial development of Peru. PRE must encourage whenever possible, the joint responsibility of both the education sector and the private sector to mutually engage in initiatives for the economic health of Peru, including job training and employment development.

#### BACKGROUND

In PRE's outgoing telegram State 316220, it was stated, "Study has a two fold purpose: (1) To provide immediate guidance to PRE and TECSUP on how to proceed in the short term, i.e., to organize present resources more efficiently and to commit remaining unobligated funds most effectively. (2) To provide longer term remedial and strategic plan recommendations to assist all parties, including AID and PRE with program decisions."

In short, although the major charge of this assignment was to make an assessment and analysis of TECSUP with appropriate recommendations, the assignment also called for a process of technical assistance during the site visit to enhance the project's success if there appeared to be sufficient reasons for AID to continue its support.

The report is therefore in three discrete parts. The first is the Executive Summary. The second addresses the total elements within the scope of work. The third is a document called the Strategic Plan Process (to include the Operational Plan Process with specific tasks and time lines).

In the view of the Contractor, this report must accomplish twin purposes:

- a) It must give a concise assessment as to situations as found on his site visit and,
- b) it must provide guidance to AID, PRE AND TECSUP ("i.e., to organize present resources more efficiently and to commit remaining unobligated funds most effectively.") The Strategic Planning Process which includes operational planning is a result of interactions with those responsible and relevant persons in Peru associated with TECSUP as academics, or as sponsors or donors, or as representatives of industry. The Strategic Plan therefore is the tool by which AID can evaluate TECSUP's viability as an institution for the long term as well as track TECSUP's annual operational activities including those reporting progress on the short term training courses. It is based on a careful analysis, jointly made with the participation of those responsible for the implementation of the program, of resources, past performances, barriers to be overcome and future revenues.

To acquaint AID with the use of the Strategic Plan document, this narrative has taken each work scope element and capsulized the significant comments that can be made on that element. If there were more time, obviously each work scope element could be reported in greater detail over a longer projected time frame. The Strategic Plan tracks all activities and resources for TECSUP through 1989. Again, the Strategic and Operational Plan developed through a defined process is the source document which integrates the work scope elements within the dynamics of the Institute's overall performance and progress. Recommendations are also included in the plan.

#### Scope of Work Elements

**A situation analysis of the Institutional/program needs for both the short course and three year programs. This includes external environmental factors affecting the progress of the project.**

- Three year program launched with a first year enrollment of 13 students.
- Basic groundwork with Peruvian Industries initiated through interviews indicates readiness to send employees for short term intensive training to upgrade job related skills. Since industry insists their participation is conditional on providing high quality training, TECSUP can meet these needs only

if technical assistance is made available to them (probably through DTCC) to develop appropriate training packages.

- Traditional short term training courses (i.e., twice of three nights a week) requires updated database to assure courses are targeted to specific demands of a diverse student population residing in the Lima area. Although there are demographic and economic trends that indicate general needs, TECSUP must fine-tune database so that courses reflect most immediate demands.
- Financial viability of TECSUP is dependent on parallel development of both three year and short term programs to increase revenues that can be applied to inevitable short fall projected for first five years until student enrollment reaches maximum stage. Even with both, TECSUP will encounter financial shortfalls in the first five years as explained later in this report.

#### RECOMMENDATION

AID should continue to track closely the parallel development of the three year course of study and the short term courses since the future viability of TECSUP is dependent on both. Implicit in this tracking is a constant assessment of the environmental factors which will ultimately affect TECSUP as an institute.

**A diagnostic institutional assessment of TECSUP including its basic infrastructure, the systems in place to meet its goals, and the effectiveness of its Strategic Plan in administering this project.**

- Although strategic and operational planning capacity was minimal or non-existent during PHASE I, now that TECSUP is entering PHASE II, TECSUP is ready to initiate a more formal strategic/operational plan process. Despite the fact the leadership finds it difficult to allocate scarce resources to a more formal planning system in light of immediate competing academic and student needs, they indicate that if AID continues to fund this project, they will have the resources necessary to initiate and utilize such a process.
- Administrative and financial support systems in place were adequate only to service TECSUP's requirements during PHASE I. A study has been contracted with Delloite, Haskins and Sells to assess and recommend systems to meet TECSUP's infrastructure needs for anticipated future growth.
- Student support services has had good start with Inter American Bank grant of \$440,000. Financial system needed to administer funds.
- Current revenue base inadequate to meet capital or operating needs. Revenue base needs to be broadened immediately.

## RECOMMENDATION

Future funding of any component of TECSUP should be conditioned on the development of a long term strategic and operational plan integrating each component into a master plan with specific time-lines. Elements to be tracked include projection of student enrollments both in three year plan and in short courses, anticipated revenues, projected expenditures (including equipment), and donor or private sector support. The operational plan should be used to implement objectives that could be evaluated annually.

**An assessment of all general systems associated with a high quality private sector technical school. These systems will include, but not be limited to planning capacity, curriculum development, staffing, management information systems, marketing and internal management systems.**

- Due to the infancy of the Institute, TECSUP has a major task of developing basic systems without which no modern academic institution can operate.
- Administrative teams must receive further training to upgrade their management skills in order to supervise operational systems.
- Assistance in industrial training market survey, curriculum course construction, and faculty training is needed in both long and short term courses.

## RECOMMENDATIONS

Technical assistance and resources should be keyed to Strategic and Operational Plan. Management should be held accountable to assure what objectives are being met by what resources.

On-going technical assistance, including management practice exercises, are still a priority essential for the long and short term successes of TECSUP.

AID must recognize that without a stabilized institution, the short courses will be vines without strong roots. At the same time, AID must constantly reinforce the fact that TECSUP cannot survive without the outreach provided by the vines of short term courses. The mutuality of these goals must be constantly emphasized.

**An assessment of technical assistance input, including DTCC, and other possible sources.**

Technical assistance needed is varied but should all tie into the major objective of institutional capacity building in the management/administrative and instructional areas.

## RECOMMENDATIONS

- 3 person months periodic and ongoing institutional technical assistance. Functions to be performed include assistance in review and updating of Strategic Plan and Operational Plan, design and implementation of management system, and instructional program components.

Recommended source: DTCC and/or private consultant.

- Long term relationship with sister institution be maintained for institutional/educational technical assistance. AID should earmark \$100,000 per annum for a three year period to implement operational plan.

Recommended source: DTCC

- 1 person year planning and management systems specialist. Functions to be performed include implementation and refinement of the system recommended by Delloite, Haskins, and Sells, follow-up on Strategic Planning implementation, liaison with U.S. technical assistance.

Recommended source: TECSUP employee

It is further recommended that the technical assistance be within the context of the goals set under the planning process and be evaluated under that process.

Interviews with selected potential industries to assess their training needs and their past and present expectations related to TECSUP.

- Interviews with selected industrial managers confirmed the need for the type of training to be offered by TECSUP, the appropriateness of the curricula, the willingness to participate in such training and a possibility of donating to such a mission through scholarships, employee time, etc. (refer to chart for specific responses by industry).
- Donors and industrial supporters should be broadened, although current listing is evidence of substantial industrial base.

## RECOMMENDATIONS:

TECSUP has done an exceptional job in tapping generous donors. However, there needs to be a more systematic means by which industrial relationships are developed if TECSUP is not only to have donors, but also a reliable source of and placement for students.

**Current and recommended roles of all donors, (including PRE, USAID, IDB, Germany, etc.) and private sector sources, toward the objective of the future financial viability of TECSUP.**

- TECSUP needs an over-all strategy to maximize or synergize donations and/or sources of funding.
- The concept of the educational/private sector partnership to make TECSUP work is clearly understood by industries in Peru.

RECOMMENDATION:

AID should encourage TECSUP to expand the Sponsors Committee, including key representation from current and potential donor groups, to formalize a long range Donor's Financial Plan (much on the mode) used by United Way in the United States.)

**Recommendations for the immediate future as to a minimum initial short term program that would provide an early positive cash flow for TECSUP, indicating additional equipment and other program requirements.**

- Courses for short term will require immediate technical assistance from an institution such as DTCC.
- Survey of on site equipment must be assessed for possible use in short term course curricula. However, this invariably requires an inventory of all equipment since most equipment serve both in three year course and the short term course.
- The logistics of delivery and installation of equipment is a major barrier which works against time tables.
- AID must recognize the integration of a short course program is dependent on interlocking factors more basic to the Institute.

RECOMMENDATIONS:

DTCC should proceed immediately to provide technical assistance for development of short courses and an equipment needs assessment. Survey of equipment needs should be completed so that AID can be informed as to dollar amounts required for additional equipment to commence short course program for next three years. (Local funds will finance equipment costs thereafter).

Until TECSUP's academic program enrollments including short courses are stabilized, AID will be asked to offset 50% of TECSUP's operating short fall which, for AID amounts in 1985 to \$106,500; in 1986 to \$91,000 and in 1987 to \$80,000, and in 1988 to \$50,000. None of these funds are to be used to retire old debts. The cost factors which account for this projection are clearly itemized in an attached financial analysis. The short fall is a result of front end start up costs which cannot reach a break even point until enrollment reaches its maximum in 1989, and is usual to the development of any academic institution. However, each expenditure within this rubric should be monitored rigorously through the Strategic Planning Process. After 1989, this short-fall, according to the President of the TECSUP Board of Directors will be totally absorbed locally by private sector supporters.

## OVER-ARCHING RECOMMENDATIONS:

As the six weeks in Peru came to a close, the impressions of what I had seen gradually fitted into place as significant data that should be reported to AID for the important decisions that are soon to be made. It would be difficult to capture the spirit of what this project has come to mean to a growing number of Peruvians, and especially to those who first envisioned the technical institute which we have all come to know as TECSUP. Those who are associated with this endeavor give meaning to such terms as "nation builders" or "risk takers." What motivates them is a belief in something beyond what the usual entrepreneur sees.

At the same time, as a consultant commissioned by AID/PRE, I also felt my responsibility to report on those significant barriers that lay not only ahead, but directly in this immediate time frame, that must be considered if AID is to have all the information necessary to make a responsible decision regarding the future funding of TECSUP.

This site visit was a clear reaffirmation of how AID and TECSUP brought almost all the necessary potential strengths and conditions which in fact could be harnessed to accomplish complementary goals. Based on these impressions, I make the following over-arching recommendations.

- \* AID, in recognition of the immediate needs of TECSUP to launch both an expanded three year course program and a short course program, should make available immediate technical assistance through an institution such as DTCC.
- \* AID must recognize that an initiative such as the development of a technical school is a long term effort, and that although the Institution should be held accountable annually through an operational planning process, the implied commitment is for a longer term. AID should not underestimate its status in enlisting private sector participation and the serious consequences its abrupt withdrawal would have on the momentum of the project.
- \* Although AID's major priority and investment in the TECSUP project has been to assure the initiation of a short term course (Special Programs), within the framework of a stabilized technical training institute, AID now has data that clearly indicates that even with the institutionalization of the short courses, TECSUP must operate with a financial shortfall for at least five years or until student enrollment is maximized in 1989. The data projects, however, that beyond that point, the short fall, which will be reduced significantly, can be managed locally. AID must therefore acknowledge in its assistance strategy that any investment in the short courses must be considered to be unalterably entwined with TECSUP's total viability as an institution.
- \* AID must now face the hard reality that to invest in the short

term courses without attention to over-arching institutional needs is unrealistic and cannot be recommended from a management perspective based on TECSUP's financial profile for the next five years, as developed during this site visit. This is not to preclude the fact that some of the needed resources might be cost shared by other sources (i.e., equipment costs) in some instances. The point however is that AID must understand that certain costs which are not directly related to the short courses might be justifiable if AID is to fulfill its mission in a macrocosmic sense. Without such an understanding, any other investment in TECSUP for short courses or for infrastructure development is analogous to building castles in the sand.

- \* AID can be assured that based on available data, a Strategic Planning process indicates it is possible for TECSUP to be a financially viable operation after five years, based on projected needs and on identified potential resources. AID, based on its own available resources, should know that the data suggests that there are sufficient reasons to support future assistance to TECSUP.
- \* AID should make available to TECSUP periodical technical assistance on an on-going basis to upgrade the skills of current management to develop and implement a Strategic Planning Process and to reinforce its relevance to the long term viability of the Institute.
- \* AID funds, either for components or for the total project, should be conditioned on the development and implementation of a Strategic Plan so that progress or reasons for delays can be measured against it. TECSUP is going to grow into a geometrically complex organization if it is to meet its institutional goals. Without a Strategic Plan, no one stationed in Peru, much less anyone outside of the country, could comment with any objective data on the progress being made by TECSUP. Both AID and TECSUP deserve better.

As a final comment, I would be remiss if I did not acknowledge the graciousness and kindnesses extended me by my Peruvian and AID colleagues during my site visit. Their willingness to be as accommodating as possible was demonstrated again and again. To them I shall be eternally grateful for making my stay pleasant, rewarding and informative.

## PART III

### TECSUP MASTER PLAN FOR STRATEGIC ACTION

#### PURPOSE OF THIS PLAN:

To respond to a request from AID to conduct a situational analysis of TECSUP and to assist in the development of a master planning process for strategic actions to assist TECSUP and AID in determining future actions.

#### TYPES OF ORGANIZATIONAL PLANNING:

Two types of planning will be discussed in this document: (1) Operational, and (2) Strategic.

##### Operational Planning

Operational or short-term planning guides an organization's day-to-day activities. Institute administrators participate in the development of measurable objectives stating quantitative results and specific time frames as well as the tasks necessary to accomplish the objectives.

Administrators can determine on an ongoing basis whether the objectives are realistic and whether the resources are available to carry them out. Operational plans remind Institute personnel on what the objectives are; what tasks are scheduled; who should carry them out; how they can best be accomplished; their contribution toward the Institute's financial independence; the resources needed to carry them out; and the time frame for completion.

To accomplish the above however, operational plans must emerge from reliable data that are accurate, timely, and relevant to the specific objectives. Some of the data can be based on experience gathered from similar organizations such as the Mexican CONALEP.

Budgets are a critical part of operational plans. Such plans should accurately assess the cost benefit of each element of a project; hence, they must reflect the cost of each unit of operation involved.

##### Strategic Planning

To quote the management expert/author Peter Drucker, strategic planning is:

"the continuous process of making present risk-taking decisions systematically and with the greatest knowledge of their futurity; organizing systematically the efforts

needed to carry out these decisions; and measuring the results of these decisions against the expectations through organized, systematic feedback." (p. 120 in Management, London: Pan Books, 1977)

Strategic planning enables an organization to design long term strategies based on best available data. The major components of such a process include:

- external analysis of the environment within which the organization functions.
- self analysis
- strategy identification and selection, including the TECSUP Mission Statement, Strategic Alternatives, selection of the Institute's Organizational Strategy, and development and implementation of the Operational Plan.
- evaluation of the effectiveness of the strategy selected and other possible alternative strategies.

The major steps in developing these components are described as adapted for TECSUP in the following pages.

#### STEP ONE -- DEVELOP AN EFFECTIVE PLANNING ORGANIZATION

The TECSUP Executive Director, the directors of Administration and Instruction, along with others who play critical roles within the Institute are responsible for development of the Strategic Plan. The Executive Director is responsible for providing direction and purpose.

Since full-scale strategic planning requires a major commitment and effort of an organization, policy level support of the strategic Planning processes should be clear to all Institute personnel. TECSUP well recognizes the need for systems designed to meet the educational goals programmed to start in 1985 (Current class is a pilot. Full promotion for next year's class of 100 is underway).

#### STEP TWO -- ESTABLISHING A PLANNING FORMAT

The planning format selected for this project includes an operational plan and a strategic planning process which is customized for TECSUP-AID needs. Both are a part of this report.

#### STEP THREE -- DEFINE THE ORGANIZATION'S DOMAIN

Comment: Defining the domain of the organization leads to answering two major questions: What is TECSUP now? What is TECSUP'S potential to meet the demands for its services in a competitive market? This involves clarifying both the services currently offered and the markets to which they are being offered.

This involves an examination of current strengths, weaknesses, market position, competition, and objectives. To be effective in defining the organization's domain, it is critical that management make an objective evaluation of all operations for the organization as a whole, as well as by department or work unit.

A key element of this step requires identification of those factors that contribute most to the Institute's competitive edge. These include a unique service or product: "product" reliability and long term viability (i.e., obtaining and maintaining a reputation that TECSUP graduates are well trained); a favorable price/quality relationship; a strong financial and/or marketing position; up to date facilities and equipment; marketing; quality service; short delivery lead times; low overhead, and predictable tracks for recruitment of students, both as individuals and as industrial employees.

#### TECSUP DOMAIN

What is the current organizational structure? What is TECSUP's planning capacity now? What business is TECSUP in? What are the services which TECSUP currently offers and the markets to which they are being offered?

#### 1. TECSUP Goals

- Train professionals who are specialized in the operation, maintenance and repair of equipment and instruments that represent a major capital investment in industry, and who increase potential profit margins by increasing plant efficiency.
- Provide opportunities for youth interested in a technical vocation to enter into new careers or to upgrade their skills to meet the national need for what is often referred to as the "practical intelligence" essential to an industrial economy.
- Elevate the status of the non University professional graduate who is so needed in the productive activity of the country.
- Facilitate technology transfer from foreign sources by raising the theoretical and practical capacity of the Peruvian professional recipients.
- Raise the efficiency level of work site operational activities as well as the technical level by providing well trained employees.

#### 2. Actual organization as of December 15, 1984 includes the following departments. (See table 1 for a more detailed overview of the organizational structure.)

- Board of Directors
  - Executive Director
  - Administrative Department
  - Instructional Department
  - Promotion and Public Relations Department
3. Currently TECSUP plans to offer a three-year training program for post-secondary trainees and short courses (special programs) for industry employees and self-taught technicians in six technical fields:
- Supervision of operations
  - Maintenance of heavy machinery and diesel engines
  - Plant installation and maintenance
  - Industrial electrotechnology
  - Industrial electronics
  - Computer science
4. Current TECSUP strengths include:
- Facilities to house the classes have been constructed. Against the plan, 60% of the buildings are completed and 40% of the equipment has been purchased.
  - Local industry/supporters have contributed time, land and other resources.
  - Five Peruvian professors have been trained at DTCC. DTCC reports that their work was excellent.
  - Founders, management and staff are dedicated to making TECSUP a success.
  - A wide range of donors representing private citizens, foreign benefactors, and local industries, have contributed or are involved.
  - Peruvian industries require the types of training that TECSUP can provide through the three year and short-term programs, and will continue to require them for the foreseeable future. This is particularly true with the type of curricula TECSUP offers which emphasizes plant and equipment maintenance.
  - The tuition paid by industry is tax deductible.
  - TECSUP has received favorable status for importation of necessary equipment.
5. Current TECSUP weaknesses include:
- Short institutional history, hence, lack of an established reputation and market position, plus lack of long-term experience marketing and providing vocational training as TECSUP.

- An underdeveloped administrative infrastructure--under-development of administrative services: fiscal planning, accounting, student facilities and curriculum development.
- Narrow base of industry support which, despite TECSUP's initial successes, represents only the tip of the iceberg in terms of the large number of Peruvian industries that could still be involved.
- Limited planning capacity, lack of a strategic plan or a strong traditional long-term plan.
- Expected student course fees from both 3 year course or short term program will not cover operating costs for at least five years.

## 6. Current TECSUP Market Position

### 6.1 What position does TECSUP currently occupy in the technical market?

As illustrated in Fig. 1 below, the education/training market can be divided into five levels. TECSUP targets the market that is principally located in the mid-level range (Level 3).

LEVEL OF ADVANCED ACADEMIC SPECIALIZATION	
Doctoral Specialized Training	LEVEL 5
Researchers/Investigators	XXX
LEVEL OF ENGINEERS	
University Graduates	LEVEL 4
Engineers	XXX
LEVEL OF PROFESSIONAL TECHNICIAN	
Mid level professional technician	LEVEL 3
Post secondary formal training	XXX
LEVEL OF SKILLED OPERATORS	
Non degree training courses	LEVEL 2
on-the-job training	
Skilled operators	XXX
LEVEL OF UNSKILLED LABORERS	
	LEVEL 1
XXX: Common to two levels	

FIGURE 1

### 6.2 Student population is composed as follows:

- Youth not over 22 years of age, that are high school graduates and that pass the entrance examination are eligible for admittance.

- Technicians presently employed by industry as well as self-taught practitioners may be admitted to the special program-short courses. (This may result in a recognized diploma as a technician.)

6.3 - Student fees are paid or generated in the following manner:

- Factories or industrial sponsor pay tuitions, in part or in full, for those they sponsor. For example, for the first semester which enrolled 19 students three students received full scholarships and two received partial scholarships.
- Students who can afford to do so are expected to pay the full tuition.
- Students who are economically disadvantaged who enroll in TECSUP may apply for loans payable upon graduation.

6.4 What is the demand for TECSUP services or graduates?

- The need for well prepared technicians in Peru is great, as indicated by the industries visited. According to the industry report, if TECSUP produces high quality graduates, the demand for them will greatly exceed TECSUP's projected offerings. See Table 2 for report of industry findings.

7. Other factors that contribute most to the institute's competitive edge.

- Are the facilities and equipment adequate to meet stated objectives?

As explained elsewhere in the report, the building is 60% complete. However, the purchase of some equipment is an urgent need.

- What is TECSUP doing to establish and maintain a reputation that institute graduates are well trained?

In order to establish and maintain such a reputation, TECSUP has embarked on the following courses of action:

- \* Initial contacts have been made with selected industries in order that courses be responsive to industry requirements and that they are of the quality that is demanded by the market.
- \* Industry has participated in the development of course programs by reviewing content with TECSUP.

\* The following two steps have been taken to assure that TECSUP courses are updated and consonant with the latest educational technology and methodology:

- (1) On site long-range technical assistance by Baden-Wuerttemberg and by the presence of specialists in various technical areas, and,
- (2) the adoption of concept of a U.S. sister institution, DTCC, to include four month U.S. based training for five Peruvian professors, who are presently on staff; DTCC should be requested to develop courses to upgrade the self taught technicians presently employed in industry.

8. What is TECSUP's financial position? Is it able to fund the required capital and operational requirements?

TECSUP is in its first phase (start up) and still has many financial needs. Projections as shown in Table 3 and 7 indicate that it can move to financial viability within a five year period. During this first year, the academic program was only a pilot program in which 35 students took the entrance examination; 20 passed; 19 enrolled; 6 have dropped and 13 are currently enrolled.

#### STEP FOUR -- SET SPECIFIC OBJECTIVES

Comment: With this step TECSUP determines where it wants to be in terms of specific objectives. This step states the Institute's long-range plans and results.

\*\*\*

1. Prepare for the Peruvian market 180 technicians per year (30 in each of the specialties mentioned previously). Refer to Tables 3 - 7 for the operating and capital costs and revenues necessary in meeting this objective.
2. By December 1985, the mechanism for development of industry-responsive short courses will be in place and at least 12 will have been conducted.
3. By 1989, TECSUP will establish that it is financially viable. (Identified revenues will be available to support both capital and operating expenses on an ongoing basis).

#### STEP FIVE -- STATE BASIC ASSUMPTIONS ABOUT RELEVANT FUTURE DEVELOPMENTS

Comment: The next step requires the development of forecasts or statements of expectations concerning the Institute's future, based upon certain assumptions of anticipated developments which will affect TECSUP.

In developing these forecasts, we simply extrapolate from past and current events. We look at available data, analyze the situation, and make the best estimates about the future in order to determine what our wisest present decisions should be.

\*\*\*

Major forecasts or trends anticipated to impact on TECSUP include:

1. Increase of the demand for technicians in Peruvian industry leading to increased demand for training in these areas.
2. Industry based support for TECSUP will broaden leading to demand for training in areas not currently offered.
3. Expansion of public-supported technical training leading to competition and an increased need for TECSUP to increase marketing its offering and maintenance of a reputation of high quality.
4. Economy will remain at present level, thus requiring continued assistance from Board of Directors and Associates for the near future.
5. Students will continue to need financial assistance.

#### STEP SIX -- DEVISE ALTERNATIVE COURSES OF ACTIONS

Comment: The forecasts which have been projected makes it apparent that there is one course of action or alternative available, or desired at this time. We now evaluate this alternative with a specific awareness to the affect the alternative might have on the strengths and weaknesses of the institution.

#### Selected Alternative

To focus all TECSUP resources in developing and offering an industry responsive quality three year Technician Preparation Program and a Short-Term Program (special programs to upgrade industry employees and self taught technicians).

1. Consideration of TECSUP's identified strengths.
  - 1.1 60% of the facilities to house classes have been constructed.
    - Projections on this Plan are made on the assumption that all classes are taught at TECSUP. However, in planning training sites for the short courses, the Administration must consider whether at times the required skills might be better taught at other sites.
  - 1.2 Industry supporters have contributed time, land and other resources.

- The types of industry support may vary in PHASE II from PHASE I. For example, it might be providing faculty from among their supervisory employees; it might be providing access to plants or officials as models for training; it might be assisting in planning sessions to develop curricula or potential student groups for participation in short courses. The emphasis in PHASE II should be on educational program development and marketing.
- 1.3 A wide range of donors have contributed or are involved: PRE, AID, CONALEP, Baden-Wuerttemberg, Inter American Development Bank, local businesses and industries.
- Baden-Wuerttemberg has focused on long term training. PRE has emphasized the integration of short-term courses. In fact, the future funding from AID has been predicated on the premise that such courses shall be offered as soon as possible.
- 1.4 Curriculum for courses similar to TECSUP's have been developed and used by CONALEP, Mexico, Germany, DTCC and could be adapted for use in Peru without extensive changes.
- This strength supports the alternative in that it will reduce the level of effort necessary for curriculum development, thus enabling TECSUP to concentrate more efforts in other areas.
- 1.5 Industry has a need for the types of training TECSUP could provide through the Special Programs.
- Aside from the immediate visibility and expansion of the institute, the short courses programs would provide a source of much needed income. It is an important fact that were the vacuum for short term courses to be filled by other sources, the overall viability of the Institute would be hampered by diluting a vital source of income. Equally important is the immediate interactions that would be possible between TECSUP and potential purchasers of training services for mid level technicians.
2. Consideration of the Alternative based on identified TECSUP weaknesses.
- 2.1 Short institutional history, hence lack of established reputation and market position, plus lack of long term institutional experience marketing and providing vocational training as TECSUP.
- This alternative rounds out the reputation of TECSUP both as a traditional academic institution for mid-level technicians, and a community resource

responsive to the immediate needs of industry. The direct contact TECSUP will have with the private sector as a result of this two pronged approach will add considerably to an early assessment of the training capabilities of the Institute. Further, the access to market data will be much more reality based as the Institute expands its networks of private sector employers who will be expressing external training needs in the market place.

- 2.2 An administrative infrastructure insufficiently developed to cover: fiscal planning, accounting; student services; curriculum development; long term planning.
  - Aware of this weakness, TECSUP is moving to remedy it. Nonetheless, without the development of the short term courses, significant sources of funding could be jeopardized. The contract awarded to Delloite, Hasking and Sells is the first step in designing the necessary administrative infrastructure.
- 2.3 Narrow base of industry support.
  - A short term training course program could most directly tackle this weakness by immediately establishing a wider provider-consumer of services relationship, and for the reasons stated above.
- 2.4 Limited planning capacity: Lack of a strategic plan or a traditional long term plan.
  - In this competitive market place with restricted cash flow, no complex Institute can proceed without adequate planning capabilities.
  - This plan provides a procedure by which TECSUP can implement a strong strategic and operational planning process. It will, however, require serious maintenance as an ongoing TECSUP function.
- 2.5 TECSUP is currently and for the near future unable to operate solely on expected fees from both programs.
  - Assuming that weaknesses 2.2 and 2.3 can somehow be brought to manageable terms, the short term courses can be a viable option by which the Institute can improve a critical financial short-fall. Projections as shown on Table 7 indicate that the short course program will not completely offset the deficit. Other sources of funding will have to be found, but the magnitude and duration of this short fall is now part of TECSUP's working data as identified through the Strategic Planning Process. TECSUP now can establish an objective to overcome this barrier through the identification of other sources of funding (i.e., Peruvian/foreign donors, etc.). As a result of this new data

the President of the Board has indicated that by 1989, the \$65,000 deficit can be absorbed locally.

#### CONCLUSION:

If the selected alternative can be considered to be a viable option, the next step is to explore the actions that must be taken to reduce the risks so that the Alternative can be acceptable from a TECSUP perspective.

#### STEP SEVEN -- FORMULATE STRATEGIES

Comment: At this point strategies are formulated to reach Institute objectives considering objectives, strengths, weaknesses, and available resources, TECSUP decides what the Institute must do to get from where it is to where it wants to be, the environments under which the Institute can operate, and the basic thrust of the Institute.

Most crucial to the success of the strategic plan is how effectively strategies can turn objectives into realities. The mission of the Institute, what the Institute will "sell," that is what training and other service it will provide, to whom, and how it will "sell" or provide it, will be clearly articulated.

\*\*\*

The major TECSUP Institute objectives identified in Step Four were:

Objective 1: By 1989 provide local industry with 180 graduates in the six selected careers each year.

Strategy: Growth in the Institute to increase the share of the technical training market.

Tactics include:

1. Determine the labor market demand for training by specific technical area. Note: A preliminary industry sample indicates a strong market demand. Continued follow-up surveys are desirable. See Table 2.
2. Identify and acquire needed facilities and resources. Note: Facilities well on their way; additional facilities needed. Equipment and supplies acquisition urgent.
3. Advertise the availability of the training with feeder schools, industry and general public. Promotion for 1985 is well on its way. CENTROMIN and others are assisting.
4. Hold classes, monitoring to ensure the highest quality of training, as strongly urged by industry interview. See Table 2.

5. Program to place trainees with potential industry employers during training breaks to be implemented.
  6. Obtain funds and establish a student-aid program to assist students requiring financial assistance to attend program. In process Inter American Development Bank has awarded the sum of \$440,000 for the start of this program.
- Objective 2: By December 1985 the mechanism for development of industry-responsive Special Program (short courses) will be in place and at least 12 courses will have been offered.

By December 1987, 72 courses will be offered per year.

Strategy: Enter/grow

Tactics include:

1. Determine the labor market demand for short course training by specific technical areas. Needs to be done in more detail and constantly updated.
2. Identify and acquire facilities and resources need to provide these courses including the curriculum, the trainers, etc.
3. Determine cost and fee structure: trainee/industry fees or contributions to insure cost-recovery. Preliminary fee structure established needs to be modified as experience dictates.
4. Advertise the availability of the training with feeder schools, public media, and most intensively, to potential client industries and employees.
5. Hold classes, monitoring to ensuring the highest quality of training. Promote word-of-mouth advertising through the trainees.
6. Maintain and broaden an industry advisory committee(s) including representatives from the high training demand areas which will need to be done with some urgency.

Objective 3: By 1989 TECSUP will reach the status of a financially self-supported Institution.

Strategy: Monitor enrollment and income projections. See Tables 3 - 7. Meeting with Board President indicated that after 1989, the project ongoing operating deficit which will have been reduced down to \$65,000 will be raised locally by the Association.

## STEP EIGHT -- ANALYZE RISKS AND RESOURCES

Comment: The next step involves analysis of the potential risks, as well as the Institute's resources, to determine whether the Institute has the capability to carry out its strategies to a successful conclusion. When risks facing the Institute are determined to be unacceptable, and/or when actual or projected resources do not match those required to reach TECSUP objectives, strategies must be revised.

The strategies formulated above in Step Seven must now be analyzed in terms of the risks and uncertainties they present to the Institute from both internal and external sources.

\*\*\*

For TECSUP the following resources and risks are relevant.

### PRODUCTS

- What function do TECSUP services fill?

Train high quality technicians out of high school graduates as well as technicians in industry and those who are self taught both in three year program and in short courses program.

- Can additional functions be added to the service to expand its marketability?

On site training for specific industries.

- Is the service known for its quality?

In start up phase, quality is yet to be determined by most consumers.

- Is there recognition of the Institute?

Yes, within the circle of supporters and within the technical education field. Other audiences must still be developed.

- What are the customers' reactions to the price and quality?

Industry: The price is reasonable as long as they get high quality. Individuals: Preference is for a less expensive unit cost course.

- How do the services compare in terms of price, quality, and utility to those of competitors?

As planned, services have a high standard of quality and utility; compares favorably with the U.S. \$1200 to \$1400 asked by the Peruvian private high schools and Mexican technical institutes. TECSUP's tuitions are still being set based on student need and what the industrial market will bear.

## MARKETING

- What is the demand for present services?

The demand for high quality technicians is great and will continue to grow.

- What is the Institute's current and projected market share by service?

As shown in Table 2, TECSUP can enjoy an almost unrivaled share of the mid/level technician training market for the foreseeable future.

- What is happening or anticipated to happen to the market?

If graduates prove well trained, not only will industry support TECSUP, but a new and desirable enhancement of social and economic status for the technician would strengthen public support.

- Who are the major customers?

TECSUP Associated industries, government industry, any qualified high school graduate.

- Why?

Industry has a special need for technical education; high school graduates do not have many alternatives to choose, particularly if they are not accepted at a university.

- What are the Institute's marketing objectives in terms of overall objectives?

Establish a permanent relationship with industry to cultivate permanent placement of students in industrial jobs.

- What type of expansion into new markets would be required to reach strategic objectives?

Industry in general should be aware of the effectiveness of TECSUP programs to provide necessary enrollees.

- Is this feasible considering current marketing strengths and weaknesses?

The department of promotion and public relation along with the instructional department are designing a recruiting campaign for 1985.

- What market entry factors (e.g., acquisition, licensing, distribution, etc.) are involved?

Institute is academically in its experimental category which permits diversifying programs.

#### COMPETITION

- Who are the major competitors?

As shown in Table 8, there are no major competitors at this time, nor are any anticipated in the near future.

#### Risks:

- Public funded institutions which would provide training similar to TECSUP at a lower price have been attempted. (While the desire to do so is there, recent experience with such institutions have met with difficulties and complications and it is unlikely that they will be in a competitive position in the immediate future.)

#### ENVIRONMENT

- What is the current and projected state of the economy?

Regardless of the economy, TECSUP can fare well. For example, if the economy worsens, industries will demand more technicians to stretch out capital investments in equipment and to increase maintenance efficiency within the plant; if the economy betters, industries will be on a growth curve requiring technicians to undergird the expansion.

- What changes are taking place in terms of new technologies, research, government policies, social structure, etc., that will affect Institute strategies?

Technical assistance, particularly through DTCC and Baden Wuerttemberg, will serve as blood lines to technological innovations and research. Although TECSUP has less control over government policies or social structures, it will move quickly to enhance the status of mid level technicians so that this profession will attract the level of competency required to maintain a quality reputation.

- What opportunities will probably become available, and will the Institute's strategies allow it to take advantage of them?

By quickly establishing itself as a private sector initiative, and enlisting the support of donors both domestic and foreign, TECSUP has demonstrated its confidence in the free market and in the ultimate industrial growth of Peru. The Sponsors Committee, which represents some of Peru's most respected industrial leaders, will keep TECSUP sensitive to economic and industrial trends.

## THE INSTITUTE

- How do current facilities (size, location, layout, accessibility, equipment, overhead, utilities, etc.) match up with future needs?

The Strategic Plan indicates a positive correlation.

- Is the availability of curriculum material, equipment and trainers adequate?

The Strategic Plan and Operational Plan have indicated the appropriate actions.

- From what sources do Institute strengths arise?

The Executive Summary has addressed this in some detail.

- What is the Institute's current and projected profitability, debt position, financial leverage, capital structure, cash flow, credit lines, etc.; and how do they relate to the strategies?

All of these items have been addressed both in the Executive Summary and in the Strategic Plan.

- What is the depth of professional talent by field, i.e., by training areas plus other needed areas like finance, marketing, student counseling, etc.?

With the training of five professionals at DTCC and with the German team, the professional staff/student ratio is adequate until enrollment increases.

- What are the morale and loyalty levels of employees?

The morale and loyalty of the staff are among TECSUP's greatest assets.

### Risks:

- Highly qualified trainers may be recruited away from their positions, requiring continuing efforts at recruiting and retaining qualified staff or leading to a deterioration in the quality of training offered. The excitement of working with an Institute which is new and meets such a vital national need will be a strong incentive for many of the staff to stay; reality however, suggests that an Institute that does not address its personnel maintenance duties often does enter periods of lowered quality and morale.

## STEP NINE -- DEVELOP AN OPERATIONAL PLAN

The short-range operational or functional plan comes next. All subordinate units or areas of operation must produce their own sub objectives and strategies, as well as the action plans to

accomplish them. The action plan should be given a statement of purpose to ensure that those who carry it out are aware of its importance to the overall plan.

Comment: Timetables for achieving objectives are next. All the necessary detail for each objectives are worked out, what actions must be taken, how long they will take, when they will be performed, and who will be accountable.

- Necessary and realistic long and short range time-frames are projected in the Strategic Plan and in the Executive Summary.
- Although specific annual objectives, functions and status of tasks are now suggested in the Operational Plan, they will have to be adjusted based upon recommendations of Deloitte, Haskins and Sells, technical visits by DTCC, and further development of the Strategic Plan.
- Each adjustment or addition to the Operational Plan must be matched with appropriate resources both human and material.
- TECSUP has already begun to analyze their PHASE I Institutional capacity so that PHASE II can be projected in an annual Operational Plan according to the Strategic Plan after visit by Deloitte, Haskins and Sells.
- See Part II for a Draft Operation Plan.

#### STEP TEN -- IMPLEMENT, CONTROL AND REVIEW

Comment: Strategic planning does not stop with the implementation of the plan -- it is a continuous process. As the present year's plan is completed, the next year's is added. An analysis of conditions is made, objectives reviewed and the Plan is modified as needed.

\*\*\*

#### Control Procedures

- Responsibilities for each activity have been assigned within the Operational Plan. TECSUP Management must monitor performance on a continuous basis so that any necessary corrective action can be taken as soon as possible.

#### Review Procedures

- Review procedures should allow for assessment prior to implementation of the plan, at set points during the implementation phase and at the end. The following years plan is made after consideration of the previous years experience.

OPERATIONAL PLAN  
Office of the Executive Director

Goal: To supervise an administrative, financial and instructional plan that will assist TECSUP to implement its goals as a high quality technical training institute.

BEST AVAILABLE COPY

OPERATIONAL PLAN: Office of the Executive Director	TASKS	TIMELINES												RELATED RESOURCES	CURRENT STATUS/Comments	
		JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.			
<b>OBJECTIVES</b>																
1.1 Prepare the annual Operational Plan and the annual budget according to the Strategic Plan.	1.1.1 Establish specific goals for 1985. 1.1.2 Establish requirements to meet goals. 1.1.3 Further develop administrative systems subsystem.															1.1.1 General Plan and budget have been formulated and implemented according to original projections. It is now necessary to update/revise the General Plan and budget to a more detailed career scenario, to present and future needs. Contracts which have been awarded for development of the Operational and Administrative systems are at targeted step in this direction.
1.2 Supervise implementation of the budget process according to the Operational Plan.	1.2.1 Further develop the budget process as required by PA&E II.															1.2.1 These tasks are currently being performed by the Executive Director in large part to the review of TRSII as an institution. It is now necessary as a result of the study being performed to fill the Executive Director's design and development to allocate the tasks to the proper levels.
1.3 Establish and maintain ongoing relationships with the Board of Directors and Advisory Committees.	1.3.1 Continue to develop relationships with Board of Directors and advisory committees through every opportunity possible, (i.e., social, formal meetings, tours of the facilities, visits to industries, newsletters, etc.).															1.3.1 The Board of Directors has been and continues to be one of TRSII's greatest strengths. Technical Advisors have been using PA&E I as needed. Feedback on a more formal technical advisory committee structure is required as TRSII starts designing the short courses for industry. Continued communication with related industries at various levels is vital to TRSII's success in all its programs.
1.4 Select and hire administrative, instructional and support staff.	1.4.1 Select personnel for 1985 TRSII's programed growth, for both administrative and teaching areas. 1.4.2 Supervising, hiring and dismissal of personnel.															1.4.1 New personnel have been hired for the current developmental phase. The initial staff of specialists has been utilized after as generalists to meet the necessary activities in this new institution. This has provided a cadre of professional staff who are well aware of their Institute needs. As TRSII grows, more differentiation of duties will be required. It is however essential that they shall continue with a broader view of the Institute and its needs.
1.5 Supervise and coordinate department heads and their activities	1.5.1 Define specific organizational responsibilities and delegations of authorities at various levels. 1.5.2 Establish administrative and supervisory evaluation procedures. 1.5.3 Monitor accomplishments of departments on a time certain periodic basis.															1.5.1 Currently, most major personnel and administrative decisions are made by the Executive Director. PA&E II requires an organizational structure which allows for responsibility, delegation and accountability at the lowest level possible. TRSII will move in that direction as the administrative systems are designed and implemented.
1.6 Supervise educational loan programs.	1.6.1 Secure necessary funds for establishment of financial student assistance program. 1.6.2 Develop and implement administrative procedures for implementation of program.															1.6.1 Inter American Bank has secured a grant of \$40,000 to start the student assistance program. A system is now needed to administer the funds.
1.7 Direct fund raising activities to reach financial goals.	1.7.1 Design and implement a more formal and targeted fund raising program.															1.7.1 Presently conducted at Executive Director and Board level. Much of these activities could be delegated if a more formal structure were in place.

35

BEST AVAILABLE COPY

OPERATIONAL PLAN  
Department of Administration

Goal: Provide administrative services required for implementation of TROSP's instructional program.

OBJECTIVES	TASKS	TIMELINE												REQUIRED RESOURCES	CURRENT STATUS / Comments	
		JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.			
2.1 Supervise the personnel system.	2.1.1 Develop and implement a personnel system for full-time employees. 2.1.2 Develop and implement a personnel system for part-time employees.															2.1.1 A system has been developed and implemented to meet current needs. However, PHASE II requires a more refined, integrated personnel system. The current contract with Deloitte, Haskins and Sells should produce the design and recommendations for this system.
2.2 Supervise facility maintenance and services.	2.2.1 Develop and implement a maintenance system for all Institute facilities, properties etc.															2.2.1 Since the building has only recently been delivered, and as fact is still being worked on, the formal maintenance program has not been developed. Facility maintenance needs to be considered as part of the immediate planning and budget process as indicated in the Strategic Planning Document.
2.3 Supervise and audit purchases of consumable supplies and materials.	2.3.1 Plan for and purchase furniture and equipment. 2.3.2 Plan for, purchase and maintain an adequate supply of consumable supplies.															2.3.1 A detailed plan for furniture and equipment for the 3-year course has been prepared through formal technical assistance. A similar plan for the short courses (special programs) need to be developed. The total purchasing program still need to be developed and implemented.
2.4 Supervise through inventory, materials, parts and equipment.	2.4.1 Establish formal inventory control systems and implement them.															2.4.1 An inventory list exists and is currently being used. Recommendation for this sub-system is within the Deloitte, Haskins and Sells scope of work.
2.5 Establish an inventory control system with dates of purchase, general condition of equipment or parts and approximate value.																2.5.1 Included in 2.4 above.

96

BEST AVAILABLE COPY

OPERATIONAL PLAN  
Department of Instruction

Goal: Provide high quality instruction in educational programs offered by THSLP.

TIMELINES

JAN. FEB. MAR. APR. MAY. JUN. JUL. AUG. SEP. OCT. NOV. DEC.

OBJECTIVES	TASKS	REQUIRED RESOURCES	CURRENT STATUS / Comments
3.1 Develop and update curricula and programs.	3.1.1 Define general requirements for each career field. Continue close coordination of all programs.		3.1.1 General requirements for each career field have been defined and published. Process for keeping curricula updated needs to be formalized.
3.2 Evaluate program results.	3.2.1 Refine the student evaluation system. 3.2.2 Design and implement a teacher and staff evaluation system.		3.2.1 A system for student evaluation is in place. Records, grades, socio-economic status for first semester students are in place. 3.2.2 A formal teacher/staff evaluation process is not in place; needs to be designed and implemented as soon as possible.
3.3 Supervise student files and academic progress.	3.3.1 Design and implement a student information file.		3.3.1 (See 3.2.1 above.)
3.4 Supervise the maintenance and inventory control of instructional equipment and materials	3.4.1 Identify equipment needs for the educational programs. 3.4.2 Design and implement an equipment maintenance program that will be carried out by THSLP personnel as well as by third parties.		3.4.1 Data establishing maintenance need for 3 year course program have been documented. Should be updated regularly. Data on short term courses (special programs) not as solid and needs refinement. Short term courses maintenance needs should be closely coordinated with three year program. 3.4.2 Not in place. Formal system needs to be developed.
3.5 Supervise the graphic arts and library sections.	3.5.1 Prepare a list of and budget for library acquisitions. 3.5.2 Select and implement a library system and code for all acquisitions. 3.5.3 Identify listings of essential reference and publications (including periodicals) which should be part of an up-to-date library service for students attending a modern technical institute.		3.5.1 Preliminary needs have been identified. Purchases must be made and library acquisitions must be expanded with some degree of urgency. 3.5.3 Supplies are not adequate to meet demands during semester. THSLP should have in stock at least a two semester reserves in warehouse so that instruction will not be hindered.

37

BEST AVAILABLE COPY

OPERATIONAL PLAN

Department of Promotion and Public Relations

Goal: To promote TESUP as a technical institute training high quality technicians responsive to the needs of industry.

TIMELINES

JAN. FEB. MAR. APR. MAY JUN. JUL. AUG. SEP. OCT. NOV. DEC. REQUIRED RESOURCES

OBJECTIVE:

BASIS

CURRENT STATUS / Comments

4.1 Promote the Institute for its high quality in order to stimulate industry participation and donations.

- 4.1.1 Develop both written (i.e., pamphlets, newsletters, announcements) and personal (meetings, orientation sessions, plant visits) promotional plans to inaugurate the three year courses and the short term courses.
- 4.1.2 Develop recruitment plans through industry and through feeder high high schools as well as through general announcements in newspapers, church bulletins, etc.
- 4.1.3 Maintain constant dialogue with industry for purposes of getting feedback, support and participation on an ongoing basis.

4.1.1 In Phase 1, the Executive Director had primarily done almost all aspects of any promotional activity. Recently a qualified director has been hired to further develop a long range promotional campaign and to assist the Executive Director in promotional activities. He might visit to continue.

APPENDICES

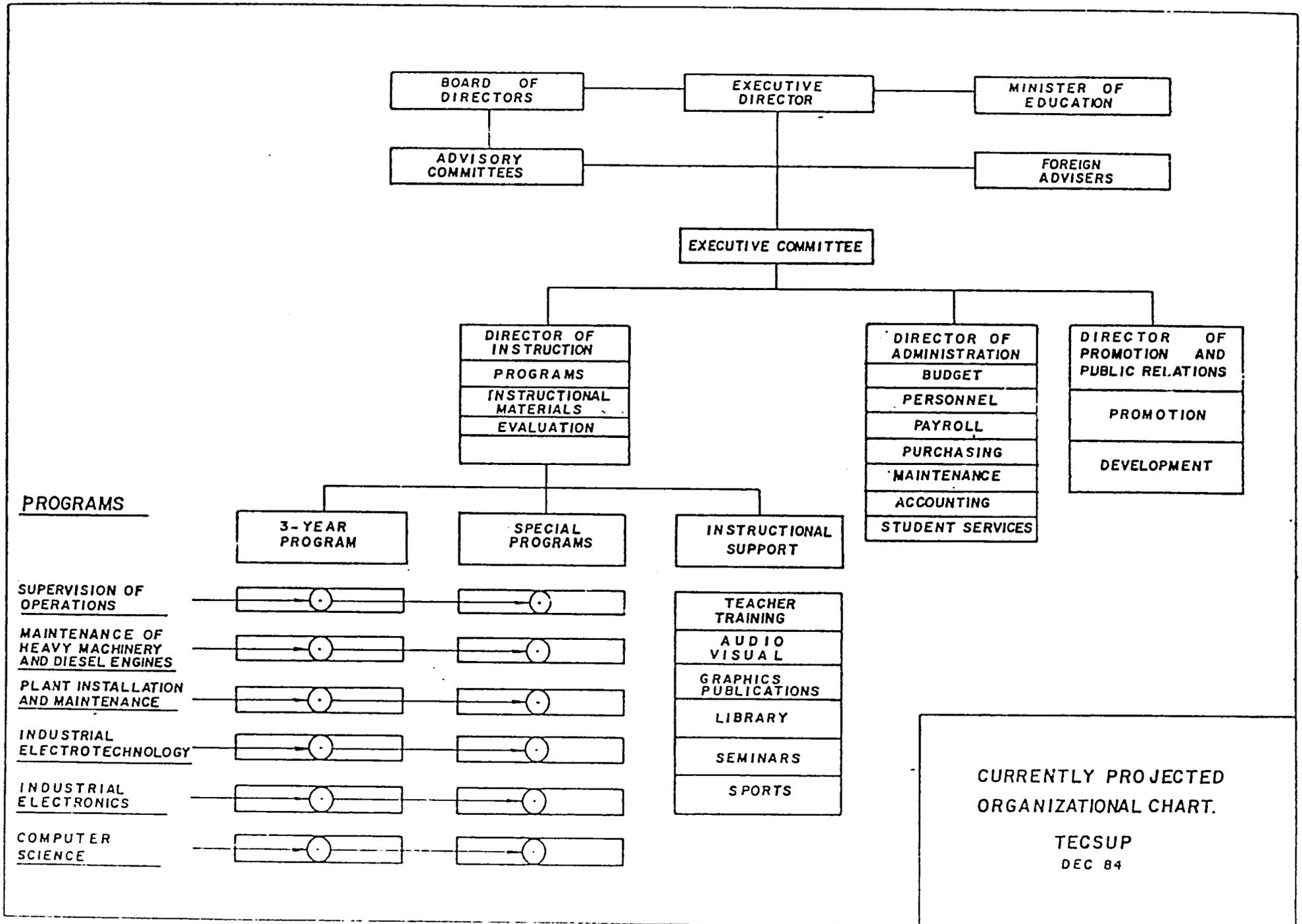


TABLE 1

40

## SIGNIFICANT FINDINGS FROM INDUSTRY INTERVIEWS

Although the specific responses of the industry representatives interviewed are charted on the following pages, there were certain insights that are worthy of special note.

There was, first of all, unanimous enthusiasm for TECSUP as a resource which could respond to their industrial training needs. They saw such a technical resource as integral to the development of Peru as an industrial nation.

They conceded that Peruvian industry alone could not be the major subsidizer of such an effort because of the substantial start up costs. But they stated in the long run, a technical institute in Peru could not help but be financially viable. They seemed sincere in their desire to be supportive, mostly through the purchase of services or through partial or full scholarships especially to their own employees or family members of employees. Industrial representatives seemed very interested in the long range career opportunities for their employees and their children.

They were adamant that the cost of tuition in itself was not as important as the quality of students that TECSUP could produce. Industry in Peru sees training to be a business investment and is more interested in cost benefit rather than lowest cost. They stated that there was no market for poor quality training at any price. They were frank to say that to some companies initially the tuition would seem to be high, but they remained convinced that developing a reputation for quality trainees would be the best response to such concerns.

As to the short courses, logistics seemed to be the major issue. They did not see it as practical to send away their employees for the seven week average evening courses. They preferred instead, intensive courses of shorter duration, possibly closer to or in their own plant. They also expressed concern that if students were to be recruited from outside the Lima area, housing would be a problem. The issue of student housing should be addressed by TECSUP if it is to train large numbers from the outlying areas where most of the industries are.

Industrial representatives were highly sensitive to the rapid changes that are taking place in Peruvian industries. For example, Hierro-Peru indicated that they were conducting a feasibility study for diversification that could open up new specialties for technicians. They felt that TECSUP could be responsive to these needs through both the three year program and the short courses (Special programs).

Finally, there was a strong common interest and desire on the part of industry representatives to participate in the planning and development of TECSUP either as advisory committee members,

TABLE 2

41

on-site faculty, liaison persons or as sponsors of one firm or another.

Industry leaders are eager to interact with the academic community. TECSUP should capitalize on this opportunity.

TABLE 2 (continued)

RELEVANT QUESTIONS	HELCO	SOUTHERN	MILFO	HIERRO PERU	IPAE	ADACHOCHA	CENTROMIN
1. Are you interested in TECSUP PROGRAMS as a user, in general.	Yes	Yes	Yes	Yes	NA	Yes	Yes
In 3-year program	1. Yes	Yes	Yes	Yes	NA	Min.	Min.
7-Week Intensive	2. Minimum 3. More possible	Yes Scholarships Yes, minimum Yes, more possible	Yes Scholarships Minimum More possible	Yes Scholarship Minimum More possible	NA	Yes	Yes
2. Need for TECSUP Mission for Peru.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3. Do you consider projected costs for courses reasonable?							
- 3 year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
- Special program	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4. Would you be willing to be represented on an Advisory Committee?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5. Would you be willing to pay the tuition for personnel that you send to TECSUP Courses. Full? Partial?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6. Would you give your employees paid time off to take intensive courses?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7. Do you believe that Peruvian Industries have a long term need for the projected annual number of graduates and trainees? (3 year course will produce 180 in six fields and the Special Programs will offer courses to 1440 trainees.)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8. As indicated in your earlier letter do you still wish and expect to use services-graduates? (see notes)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9. Do you believe that industry can absorb 30 technicians per specialty area per year?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10. Are you willing and able to hire these graduates?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
11. Would you be willing to financially assist a TECSUP student or employee?	Yes	Yes	Yes	Yes	Yes	Yes	Yes

TABLE 2 (continued)

STUDENT ENROLLMENT PROJECTION

3-Year Program

Year	Jun 84	Apr 85	March 86	March 87	March 88	March 89
June 84	19	13	13	—	—	—
April 85	—	100	90	90	—	—
March 86	—	—	200	180	180	—
March 87	—	—	—	200	180	180
March 88	—	—	—	—	200	180
March 89	—	—	—	—	—	200
-----						
Total enrollment	19	113	303	470	560	560

NOTE 1) Student enrollment will stabilize at 560 students, starting in 1988.

NOTE 2) A drop-out rate of 10% is assumed.

NOTE 3) Annual graduation rate of 180 (30 per area)

TABLE 3

114

## REGULAR DAY-TIME COURSES

## ECONOMIC ANALYSIS SHEET

	UNIT/YR	1984	1985	1986	1987	1988	1989
CUMULATIVE ENROLLMENT (1) Students		19	113	303	470	560	560
THEORY CLASSES (2) Hours/Wk		1	4	10	15	18	18
LAB CLASSES (3) Hours/Wk		1	7	19	30	36	36
-----							
F/T PROFESSORS (4) Number		5	5	10	16	18	18
P/T PROFESSORS (5) Number		4	4	15	25	30	30
F/T INSTRUCTORS (7) Number		1	5	16	24	30	30
FOREIGN EXPERTS (6) Number		5	7	7	7	7	
-----							
EXPENSES:							
SALARIES							
- THEORY	1000\$/Yr	30	30	60	96	108	108
- LAB	1000\$/Yr	4.2	21	67.2	100.8	126	12
- P/T	1000\$/Yr	2.4	2.4	9	15	18	18
- FOREIGN EXPERTS	1000\$/Yr	5	11	11	11	11	—
-----							
TEACHING SALARIES TOT	1000\$/Yr	41.6	64.4	147.2	222.8	263	252
ADMIN. SHARE (8)	1000\$/Yr		120	120	120	120	120
MATERIALS (9)	1000\$/Yr		36.9	53.4	68.6	76.6	74.4
SERVICES (10)	1000\$/Yr		18.5	26.7	34.3	38.3	37.2
-----							
TOTAL EXPENSES	1000\$/Yr		239.8	346.8	445.7	497.9	483.6
TOTAL INCOME	1000\$/Yr		79.1	212.1	329	392	392
-----							
YEARLY SURPLUS (DEFICIT)			(160.7)	(134.7)	(116.7)	(105.9)	(91.6)
DEBT UP TO 1985 assumed at US\$=0							

## NOTES:

- (1) Drop out rate = 10% of admission for the 3 year period.
- (2) For 1985: (4 theory groups) x (20 hours/wk per group) = 80 hours/wk
- (3) For 1985: (7 lab groups) x (20 hours/wk per group) = 140 hours/wk
- (4) Annual salary plus fringe benefits of F/T professor = US\$6000
- (5) Annual salary plus fringe benefits of P/T professor = US\$600
- (6) Annual salary charged to TECSUP per expert = US\$1600
- (7) Annual salary plus fringe benefits of F/T instructor = US\$4200
- (8) For Share of Administration see administrative share cost formula, Table 5
- (9) Materials estimated at 20% of total salaries.
- (10) Services estimated at 10% of total salaries.
- (11) Fee charged: US\$700 per student, per year.

TABLE 4

115

## ADMINISTRATIVE SHARE COST FORMULA

Administration salaries expense share is calculated, in direct proportion to hours-room used, for full time occupancy per week.

(1) For 3 year courses:

$$\begin{aligned} \text{Total hours per week} &= (\zeta \text{ of groups theory} + \zeta \text{ of groups lab}) \times 20\% \\ &= (18 + 36) \times 20\% = 1080 \end{aligned}$$

(2) For short courses:

$$\begin{aligned} \text{Total hours per week} &= (\zeta \text{ of groups}) (9 \text{ hours}) \\ &= 12 \times 9 = 72 \end{aligned}$$

Administrative expense share factor for 3 year courses =

$$\frac{1080}{1080 + 72} = \frac{1080}{1152} = 0.938$$

Administrative expense share factor for Special Programs

$$1 - 0.938 = 0.06$$

TABLE 5

SPECIAL PROGRAM COURSES (1)  
ECONOMIC ANALYSIS SHEET

	UNIT	85	86	87	88	89	90 (8)
ENROLLMENT	Students	240	360	480	960	1440	
% OF COURSES	Courses	12	18	24	48	72	
TEACHING EXP (2)	US\$1000	4.5	6.8	9.1	18.1	27.2	
ADMIN SHARE (3)	"	8	8	8	8	8	
MATERIALS (4)	"	1.7	3	3.4	5.2	7	
SERVICES (5)	"	0.9	1.5	1.7	2.6	3.5	
ADVERTISING EXP (6)	"	1.8	2.7	3.6	7.2	10.8	
TOTAL EXPENSE	US\$1000	16.9	22	25.8	41.1	56.5	
TOTAL INCOME (7)	"	30	39.7	59.9	105.8	158.8	
SURPLUS (DEFICIT)	US\$1000	13.1	17.7	34.1	64.7	102.3	

NOTES:

- (1) 72 courses per year; 20 students per course; 63 hours per course is present annual maximum capacity.
- (2) Professors are paid US\$6 per hour.
- (3) See Administrative share cost formula, Table 3.
- (4) Materials estimated at 20% of total salaries.
- (5) Services estimated at 10% of total salaries.
- (6) Advertising cost per course estimated at US\$150
- (7) Fee charged: US\$110.25 per 63-hour course (US\$1.75/hour)
- (8) 90 forward marks the end of start up phase.

TABLE 6

CONSOLIDATED TABLE  
REVENUES-EXPENSES US\$1000

	1985	1986	1987	1988	1989
OPERATIONAL					
INCOME:					
- Tuition 3 year program	79.1	212.1	329	392	392
- Tuition special program	30	39.7	59.9	105.8	158.8
- Peruvian Associates (1)	—	—	—	—	—
- Foreign Assistance (2)	—	—	—	—	—
Total Income	<u>109.1</u>	<u>251.8</u>	<u>388.9</u>	<u>497.8</u>	<u>550.8</u>
EXPENSES					
- 3 Year Program	239.8	346.8	445.7	497.9	483.6
- Special programs	16.9	22	25.8	41.1	56.5
- Maintenance (3)	28.3	37.2	39	39	39
- Insurance (4)	10	10	10	10	10
- Misc. Operating (5)	27.2	27.2	27.2	27.2	27.2
Total Expenses:	<u>322.2</u>	<u>443.2</u>	<u>547.7</u>	<u>579.2</u>	<u>616.3</u>
Surplus-(Deficit)	(203.1)	(181.4)	(150.8)	( 99.4)	( 65.5)

NOTES:

- (1) Recommended that Peruvian Associates cover 50% of costs for 1985 through 1988. From 1989 forward Peruvian Associates pick up total operating deficit.
- (2) Recommended that AID pick up 50% of operating costs through 1988. (Includes start up costs associated with Instructional program.)
- (3) Estimated at 1% of equipment value.
- (4) According to present insurance cost of US\$5,600.
- (5) Trips, public relations, etc. — 7,200 Invitations  
5,000 Ceremonies  
10,000 Trips  
5,000 Misc.

27,200

SPECIAL NOTES:

Assumes a present debt of US\$0.

Peruvian financing for Endowment not realistic at this time.

TABLE 7

	1985	1986	1987	1988	1989
CAPITAL OUTLAY					
Start-up					
- Equipment (3 year programs)	967	717	138.7	—	—
- Equipment (Sp. Programs)(1)	566	179.2	34.6	—	—
- Facilities	300	300	—	—	—
Replacement					
- Equipment (2)	—	—	—	200	200
- Facilities	—	—	—	—	—
Total capital outlay (3)	<u>1,833</u>	<u>1,196.2</u>	<u>173.3</u>	<u>200</u>	<u>200</u>

NOTES:

(1) Equipment for special programs is calculated at 25% of that for 3-year program.

Ref.: US made AID equipment received US\$700,000

German made equipment received US\$600,000

1,300,000

(2) Additional equipment necessary to maintain quality of instruction.

(3) Recommended that AID assume full cost of additional start up equipment.

Special Note:

- Recommended AID assistance through 1988:

	1985	1986	1987	1988
Operating Cost @ 50%	101.5	90.7	75.4	49.75
Equipment Cost	1,883	1,196.2	173.3	—
Technical Assistance				
3 person months	30.5	30.5	30.5	—
Sister Institution	100	100	100	—
TECSUP planner	10	10	10	—
	<u>2,075</u>	<u>1,427.4</u>	<u>389.2</u>	<u>49.74</u>
Grand Total	3,941.4			

TABLE 7 (cont.)

## TECSUP COMPETITION

Competition. Table 8 indicates the status of potential TECSUP competitors and their possible impact on present and future success for TECSUP.

	3-Year Program	Special Program
Supervision of Operations	UIM	UIM
Maint. of Heavy Equip. & Diesel Eng.	UIM	Note 1
Plant Installation and Maintenance	UIM	Note 2
Industrial Electrotechnology	Note	UIM
Industrial Electronics	Note 4	UIM
Computer Science	Note 5	Note 6

UIM = unique in market

### NOTES:

1. Ferreyros Co. offers short courses in operation and maintenance of CATERPILLAR equipment.  
The courses are given to clients only and therefore do not impact the TECSUP market.
2. Various manufacturing representatives offer Specialized training for their equipment to customers.  
As in ¶1 these courses are not expected to impact on TECSUP market.
3. Various training institutions that offer courses in industrial electronics exist:
  - Instituto Superior Tecnológico (IST) "Jose Pardo" (Public)
  - National Schools (Private)
  - Instituto Superior Tecnológico "San Ignacio de Loyola"
  - SENATI
 Level of training is at the skilled operator level and not considered to be in competition with the TECSUP mid-level technician market.
4. Id Note 3.
5. Various institutions offer Computer Science career training such as:
  - Instituto Metropolitano
  - I.S.T. "San Ignacio de Loyola"
  - IPAF. (Specializes in Administration)
6. Short courses in Computer Science are given by:
  - IBM for clients only.
  - Instituto Metropolitano
  - I.S.T. San Ignacio de Loyola.

TECSUP is aware of the established competition in this career field. While they feel that there is still an unmet market need they nevertheless plan to study it in more detail prior to making a final decision on whether or how to pursue training in this specialty.

TABLE 8