

**First Quarter Report - FY 1994**

- i. [brief statement of accomplishments, comparing actual accomplishments with specific program objectives and activities].**

**Objective #1: Planning for WPI Project Center and Faculty Development**

The final (and fourth) activity of Objective #1 is the completion of a needs assessment. This was performed (from WPI's perspective) by Dr. James E. Groccia during this quarter. His statement (written in March) is included here.

**WPI/ESPOL UNIVERSITY DEVELOPMENT LINKAGES PROGRAM  
NEEDS ASSESSMENT  
MARCH 22, 1994**

James E. Groccia, Ed. D.  
Director

Center for Curricular Innovation and Educational Development  
Worcester Polytechnic Institute

The WPI/ESPOL UDLP is now in its third year of operation. With less than three years remaining in this project, it is clear that an assessment of where the project has been and where it yet needs to go is a necessary step in the planning and evaluation process. A comprehensive needs assessment of this project should look at the needs each of the partner institutions separately and also at the linkage relationship as a whole. It is hoped that this needs assessment will serve all parties in the linkage project as a tool to measure progress and to help determine future directions.

This report represents my (JEG) observations only. It is hoped that discussions resulting from this report will serve to validate or refute these observations in an interactive manner. These observations were formed based on: three visits to ESPOL (1/92, 11/92, 11/93); attendance at each of the workshops held at WPI; personal correspondence with Dr. Rollings (the UDLP Principal Investigator), Dr. Susan Vernon-Gerstenfeld, the 1993 Ecuador Project Center Advisor, and other WPI faculty; correspondence with a number of ESPOL faculty and administrators; a detailed working session focusing on assessment of ESPOL's Strategic Plan with ESPOL's Director of Planning; and readings of numerous WPI and ESPOL documents.

I (JEG) would strongly recommend that ESPOL engage in a similar needs assessment review from their unique perspective, or that this needs assessment be shared with ESPOL representatives for comment and discussion. This process would be an excellent activity to include as part of a future joint meeting.

**ASSESSMENT OF WPI/ESPOL LINKAGE NEEDS:**

1. General ESPOL need for administrative and institutional policy and procedural support. ESPOL has on numerous occasions indicated a desire to consult with WPI staff concerning institutional policy and procedures dealing with such

issues as:

- student registration,
- student counseling,
- student advising,
- information management and integrated information systems,
- faculty evaluation methods and the development of a manageable performance accountability system,
- development of a meaningful student outcome assessment process,
- development of a workable student screening process for admissions to the institution,
- establishing an effective institutional research office,
- establishing an alumni office,
- establishing a development office,
- establishing an office for support and development of sponsored research.

Development of an effective educational infrastructure at ESPOL could serve as an important model for other Latin American universities, and help to ensure the development of ESPOL as an effective institution of higher education. Attention to meeting these needs will strengthen ESPOL as an institution and also allow WPI faculty and staff the opportunity to share their expertise and experience. The linkage will become tighter as a result of this general interaction.

(A word of caution: sensitivity to cross cultural issues is critical to this consultation process. A workshop on cross cultural awareness for both WPI and ESPOL faculty and staff should be considered before attempting this step.)

Recent administrative changes and restructuring may have led to the changes indicated above. My comments are based upon the internal structures in place during my (JEG) three visits to ESPOL.

2. ESPOL has expressed the need to develop procedures for implementation and assessment of the Strategic Plan. I (JEG) had a lengthy discussion with ESPOL's Director of Planning on this topic. WPI has had difficulty making progress with the development of a mechanism for process and outcomes assessment also and both institutions would benefit from an allocation of resources (financial and personnel) to address assessment in a comprehensive manner.
3. ESPOL needs to investigate the development of a mechanism to encourage and nurture a tradition of industrial support for higher education. This observation was formed after visits to local Cámaras de Comercio in Guayaquil and after discussions with numerous ESPOL faculty. This support seems to be critical for both the development of joint WPI/ESPOL faculty research and for the continuation of WPI student projects.
4. ESPOL has a pressing need for the training and retraining of its current faculty. Most ESPOL faculty have been educated to the level of the Masters degree and most are at the mid-point in their academic careers. The administration feels that there needs to be some incentive to encourage these faculty members to upgrade their credentials to remain current with

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technological developments. Financial support for ESPOL faculty seems to remain a key to progress in satisfying this need.

5. My (JEG) impression is that ESPOL faculty, in general, are still not clear about the procedures and requirements involved in "project work". They may need additional assistance in project advising and group dynamics. For the WPI/ESPOL Project Center to live beyond the USAID grant ESPOL faculty must "buy into" the project concept and have a clear knowledge of the requirements of project advising. I (JEG) also believe that the benefits of project advising for ESPOL faculty needs to be clearly articulated and supported by ESPOL. I would suggest a workshop, or series of workshops, focusing on "Project Management" and/or "Team Building and Group Dynamics" for participating ESPOL faculty might help to redress this situation.
6. While the Linkage project has been successful in bringing WPI students to Ecuador, the need remains to realize the exchange of students (faculty) from ESPOL to WPI. It is my (JEG) impression that the mechanism for this exchange is not fully understood by either institutional party. It would seem that this need is somewhat related to item #4 above.
7. To fully benefit from this exchange program ESPOL indicates a need for additional English language instruction for faculty who participate. To be able to benefit from upgrading of skills opportunities that the linkage provides it may be necessary to include an English language (ESL?) program at ESPOL. (In light of the nature of many of the potential projects that may be developed in rural Ecuador, I (JEG) also believe that it is important that Spanish language knowledge be emphasized for participating WPI students.)
8. The ESPOL Strategic Plan has identified a desire to develop "Interface Departments" that cross traditional disciplinary boundaries. A need exists to assist with this process and WPI has some recent experience in this area that should be shared.
9. To ensure continuation of the WPI/ESPOL Project Center two needs must be addressed:
  - A.) Contacts must be nurtured with the local Guayaquil industrial and/or governmental sectors to provide at least partial financial support for WPI student projects. This is extremely difficult given the lack of tradition for this type of industrial/educational relationship. (This task might lend itself to be a topic for a WPI student project.)
  - B.) A housing arrangement that is perceived by all parties to be secure continues to be a high priority need. Security concerns for this linkage project, due to its unique relationship with governmental agencies, seem to have a higher profile than at other WPI project centers. Suggestions have been made to investigate housing out of the city central to a location in Urdesa or affiliated with other Guayaquil-based educational institutions.
10. WPI faculty need to "buy" into the joint research initiatives that are critical elements of the linkage project. There have been a number of successful collaborations between WPI and ESPOL faculty but I (JEG) do not believe that this number approaches its potential. Development of

additional mechanisms to attract increased WPI participation in these joint research activities deserves further attention. The proposals that have been developed need more attention to funding and implementation resources. It is my (JEG) feeling that the ESPOL participants in these joint research ventures see themselves as dependent upon WPI to secure funding support from U.S. or international funding sources. Financial commitment from Ecuadorian sources seems to be an critical to securing external funding possibilities.

11. Students from WPI need more attention to the cross cultural aspects of the project experience. The preparation course (PQP) needs to be modified to include an expanded focus on the psychology of crossing cultures and the impact of culture on individual and group behavior.
12. The project experience needs to be strengthened with a greater degree of accountability and organization. The projects need to be developed to ensure that they are of "substantial" content and advised in a consistent and well-defined manner. This need arises partially as a result of the lack of experience of ESPOL faculty in project advising, the newness of the project, the inexperience of industry and local government with student projects, and the natural cross cultural differences found in coordinating academic experiences between two educational systems and nations.

Culture may play a significant role in the development of effective student projects and relationships with industry and governmental agencies. The existence of culturally influenced role status inequities between WPI undergraduate students and professionals in the field and/or governmental officials may be a factor to be carefully evaluated. If this situation does exist, the quality of student projects will be greatly influenced (through such roadblocks as the inability to acquire needed information and/or external cooperation, for example.) All parties in the linkage project should consider this question.

13. An important need of the ESPOL/WPI UDLP is the development of a carefully designed outcome assessment plan. This is highlighted in Dr. Frischer's letter dated February 25, 1994, in which she emphasizes the need to develop an objective method to assess attainment of the general goals of this project. Such an endeavor must begin with a careful review of the original grant proposal, a clarification of intended outcomes, identification of behaviors and objective criteria which can be used as measures of goal attainment, development of an assessment plan and schedule, determination of the resources (financial and personnel) to carry out this plan, data collection and analysis, and finally, report and dissemination of the results.

Comments from the P.I. on this assessment are included in section iii. of this report (please see).

## **Objective #2: WPI Project Center Establishment in Ecuador**

Four projects were initiated during the First Quarter of 1994 involving sixteen WPI students working at ESPOL in Guayaquil, Ecuador. These Projects were:

1. "Urban Waste Management in Guayaquil, Ecuador" conducted by A. Concepcion, F. Pereyo and O. Plante in cooperation with Ing. Daniel Tapia of ESPOL.
2. "Pollution Generated by Productive Activities" conducted by A. Burns, L. Guillette, N. Rajashekar and R. Soriano in cooperation with Dr. F. Romay and Ing. J. Duque of ESPOL.
3. "Sustainable Development for Community Planning" by T. DiNoia, S. Joseph, E. Mendez and V. Mosier in cooperation with Ing. Hector Ayon, Dr. A Barriga and Occ. S. Pizzaro of ESPOL.
4. A senior major qualifying project in Civil Engineering involving five students working on pollution as generated by mining operations.

The first three projects (in complete form) are attached to this report as Appendices A, B and C. The fourth project was not completed and is anticipated for completion during the second quarter of FY 1994. Reasons for this delay will be explored at that time.

The original design of this UDLP included only three projects (at the IQP-level) and the fourth (at MQP-level) was added to assure growth in research. All completed projects were successful in fulfilling their original tasks and two of the completed projects were able to locate additional projects for future areas of exploration. Included amongst these future projects are:

- design of a waste recycling system for Guayaquil.
- design an increased public awareness program on environmental subjects (work with Fundacion Natura).
- design of (various) specific studies in collaboration with the established chambers of commerce and industry employing a Leopold matrix approach.
- design of "mini" projects with Fundacion Natura that deal with specific community development projects such as that in Puerto Hondo and Manglaralto.
- design of projects to work with other agencies such as those listed in Appendix E of the project report (Appendix C) on "Sustainable Development for Community Planning".

The ESPOL faculty appear to be enthusiastic on the concept of projects as a mechanism of education and have included this concept in their Strategic

Plan (see last quarter's report). Mutual growth is expected to result. The Principal Investigator has initiated discussions with the ESPOL faculty on the next set of projects that are scheduled to be conducted during the last quarter of FY 1994.

### **Objective #3: Faculty Development**

Two basic activities occurred during this quarter:

1. Two intensive (one week) management related short courses were conducted by Prof. A. Gerstenfeld on the subjects of entrepreneurship and project management. The Principal Investigator has requested supporting information from Gerstenfeld on these courses and outlines of these courses are included in Appendix D of this report. These courses were not originally envisioned.
2. Two ESPOL junior faculty were sent to the United States for intensive English language training. These two made significant progress in their English skills but as of January 1994 were obtaining scores below acceptable institute levels of 550 TOEFL. The WPI/ESPOL UOLP had envisioned that ESPOL graduate students would have begun attendance at WPI much earlier than has occurred. Complete documentation (from WPI's perspective) is compiled in Appendix E of this report.

ii. [brief statement of on-going and completed activities as compared to the annual work plan].

### **Objective #2: WPI Project Center Establishment in Ecuador**

The process of announcing, reporting, soliciting, selecting and notifying undergraduate students seeking to participate at the off-campus project centers is an intensive process that spans the entire AID FY First and Second Quarters of each year. This WPI process was described in detail in the First Quarter Report FY 1993 and was repeated during FY 1994. The results of this institute-wide solicitation resulted in seven students selecting the Ecuador project center for summer term 1994 and two for late fall 1994. WPI cannot afford to execute an on-site project center when student enrollments are below tenor of twelve students without additional support. It is anticipated that WPI will execute three IQP -level projects during the summer of 1994; see Appendix G. An MQP may also result if sufficient interest exists in Civil Engineering. This process is on-going and consistent with the annual workplan.

Completed activities are the three IQP's conducted during October - December, 1993. These projects are included in the appendices (A - C) of this report and have been discussed above in section [i]. The trip report submitted to the Principal Investigator by the WPI on-site advisor is included as Appendix F. The procedures manual for the next WPI undergraduate student group has been structured. See Appendix G.

### **Objective #3: Faculty Development**

Two ESPOL selected graduate students (ie. junior ESPOL faculty) are studying English in an intensive program in Ohio during this quarter and are anticipated to continue this training until they attain the necessary 550 TOEFL level requirement for graduate student admission by WPI. Two to three other ESPOL faculty have been encouraged to submit applications for MS or PhD admission to WPI, but no further advancements have been made as of the date of this report.

No information concerning how the proposal research projects on environmental science and engineering was provided to the Principal Investigator during this quarter. This workshop was conducted during September, 1993.

ESPOL executed an international conference on aquaculture in October 1993. This conference was attended by the Principal Investigator and the head of WPI's Department of Biology and Biotechnology (Prof. Joe Bagshaw). One of the WPI student groups was asked to attend this conference by the Principal Investigator, but none of the students did so as the on-sight advisor planned conflicting activities.

One WPI faculty member (Prof. A. Gerstenfeld) conducted two, one week short courses for ESPOL faculty. The Principal Investigator has asked for the course content to be provided to him and the instructor's submission is included in Appendix D. ESPOL has not made comment on these courses either therefore their impact cannot be assessed.

The Principal Investigator has sent a summary of activities to date to all participants in the linkage. This is submitted here as Appendix H.

**iii. [Major emphasis in the report should be devoted to identifying any problems which might have mitigated against the achievements of objectives and activities. The reasons why these were not met should be given.]**

Several issues relating to problems are contained. The text which follows is the P.I.'s comments on Dr. Groccia's Needs Assessment points (listed by the same numbering as Groccia's).

The original design of the WPI and ESPOL UDLP anticipated a greater degree of interaction between individuals than has actually occurred. The P.I. had designed (nearly to the point of creating a LogFrame) the program to include the ESPOL junior faculty (i.e. WPI graduate students) directly into the pretraining program (PQP) of the WPI students being sent to Ecuador. This has yet to occur as no ESPOL applications to WPI's graduate programs have as yet resulted in admission of students. To a large extent, this is because of a change in the upper administration at ESPOL with a concurrent shift in institutional priorities.

#### **ASSESSMENT OF WPI/ESPOL LINKAGE NEEDS:**

1. General ESPOL need for administrative and institutional policy and procedural support.

ESPOL should respond to this point (on their actions) as related to new administrative restructuring and their relationships to sustaining the WPI/ESPOL linkage. (see Appendix H)

2. ESPOL has expressed the need to develop procedures for implementation and assessment of the Strategic Plan.

ESPOL might formally request that WPI join with them in this effort. The P.I. and Director of Latin American Programs at WPI feels that WPI's experiences here might serve this process significantly.

3. ESPOL needs to investigate the development of a mechanism to encourage and nurture a tradition of industrial support for higher education.

This process has begun ... and the direct involvement of WPI students (graduate and undergraduate) with Ecuadorian industry would greatly aid the linkage between the two institutions. (see Appendix H)

4. ESPOL has a pressing need for the training and retraining of it's current faculty.

The P.I. (JER) of this UDLP had originally thought that "research" would be a mechanism to stimulate this process. Little sustained progress has resulted in this area, however. Several reasons might exist here including:

- (1) a general incompatibility of what constitutes "research" at each of the two institutions,
- (2) a feeling of "being overloaded" by each of the two sets of institutional faculty,
- (3) a lack of understanding of the needs of the UDLP and the growth of the two institution's infrastructures in capacity building processes,
- (4) other reasons (see comments of two WPI faculty below).

5. J.E. Groccia's impression that ESPOL faculty, in general, are still not clear about the procedures and requirements involved in "project work" as operated at WPI and executed at ESPOL.

The long-range goal (or hope) of the PI (JER) is that the program will be able to run exclusively with ESPOL faculty overseeing the project's execution on-sight in Ecuador.

6. While the Linkage project has been successful in bringing WPI students to Ecuador, the need remains to realize the exchange of students (faculty) from ESPOL to WPI.

The P.I., (JER) has supplied all the background information relating to this UDLP to all parties. In some cases, there has been a lack of reading the information supplied or a strong desire not to function within the new paradigm created under the UDLP. This exists for both institutions in many of the specific activities designed into the program's execution. Clear reading of the U.S.A.I.D. rules and projected mission statements is needed by all parties.

7. To fully benefit from this exchange program ESPOL indicates a need for additional English language instruction for faculty who participate.

P.I. (JER) agrees fully with this statement made by Professor J.E. Groccia and will add that increased knowledge of Spanish by participating WPI personnel is needed.

8. The ESPOL Strategic Plan has identified a desire to develop "Interface Departments" that cross traditional disciplinary boundaries. A need exists to assist with this process and WPI has some experience in this area that should be shared.

WPI's administration is clearly behind ESPOL's efforts in this area. The P.I. (JER) believes that WPI has much to offer here and ESPOL has a need to become educated in the areas that WPI can proactively offer; i.e. biotechnology and biochemical engineering, fire protection engineering, informatics and several other areas that are listed in WPI's graduate catalog (see Appendix I) and ESPOL's Operational plan (see Appendix J).

9. To ensure continuation of the WPI/ESPOL Project Center two needs must be addressed:

- A.) Contacts must be nurtured with the local Guayaquil industrial and/or governmental sectors to provide at least partial financial support for WPI student projects.

The possibility of a student project may serve this task well, but the P.I.'s reading of the Ecuadorian culture implies a stronger, more higher level commitment from both institutional faculties in this area. Ecuador is a "top-down" driven social structure and the use of undergraduate students in this development can only be guaranteed if "high-level", active professional involvement is an integral component of the development; and this must be lead by the ESPOL administration.

- B.) A housing arrangement that is perceived by all parties to be secure continues to be a high priority need. Security concerns for this linkage project, due to its unique relationship with governmental agencies, seem to have a higher profile than at other WPI project centers.

This could result in complete failure of the program if not resolved. WPI has become quite concerned about potential liability to the Institute due to potential problems in safety and security.

10. WPI faculty need to "buy" into the joint research initiatives that are critical elements of the linkage project.

This relates to the P.I.'s (JER's) comments in item 4 above (see).

11. Students from WPI need more attention to the cross cultural aspects of the project experience. The preparation course (PQP) needs to be modified to include an expanded focus on the psychology of crossing cultures and the impact of culture on individual and group behavior.

These issues are being corrected through direct intervention of the P.I. (JER) and the needs assessment's author (JEG).

12. The project experience needs to be strengthened with a greater degree of accountability and organization. The projects need to be developed to ensure that they are of "substantial" content and advised in a consistent and well-defined manner.

This question has been addressed to the ESPOL administration several times in the past few months with little or no response returned to the P.I. It is now unclear how to proceed in this very important area and could result in damaging the linkage if not resolved for mutual benefit.

13. An important need of the ESPOL/WPI UDLP is the development of a carefully designed outcome assessment plan. This is highlighted in UDLP Director, Dr. Frischer's letter dated February 25, 1994, in which she emphasizes the need to develop an objective method to assess attainment of the general goals of this project. Such an endeavor must begin with a careful review of the original grant proposal, a clarification of intended outcomes, identification of behaviors and objective criteria which can be used as measures of goal attainment, development of an assessment plan and schedule, determination of the resources (financial and personnel) to carry out this plan, data collection and analysis, and finally, report and dissemination of the results.

Again, the P.I. has transmitted all these documents to all parties from both institutions and to date has not received any feedback on the central issue of leading to sustainability of this UDLP.

. . . . .

The following comments were received by the P.I. by WPI faculty in response to the initial inquiry for needs assessment review.

Jim:

Sorry I missed your deadline for replying on our ESPOL linkage, but thought it would be worthwhile to reply, and to reply in the "group mode" (following the example of the discussions of the New WPI) so that we can create a dialogue over these issues.

In terms of the A.I.D. measures of sustainability, the strongest statement can be made about promoting cultural understanding. The students we have sent to Guayaquil have, in my opinion, been well prepared for a "Third World" experience and have come back positively affected by the experience. This is not to say that we cannot improve the PQP training or find ways to enhance their experience in Ecuador, but in general, I believe that our students return with a deeper understanding of the problems faced by developing nations, and this is a much needed dimension of our globalization initiative. I think this summer's trip, with two native Ecuadorians, will be a great opportunity

to further enrich this process.

When will ESPOL students be joining us here at WPI? Their presence would greatly facilitate the preparation of our own students and would speak directly to the issue of the interests of ESPOL.

The issue of sustainability, it seems to me, is closely linked to the matter of shared research agendas. Such agendas are perhaps most logically and effectively "launched" by our good colleagues at ESPOL. Once proposals are out, then I would assume that we could identify colleagues here at WPI, maybe some on this very mailing list, who could be called upon to collaborate as is appropriate. But my guess is that the specific proposal has to be drawn up at ESPOL -- our colleagues there will know first hand what are the best approaches. Then the ball can be sent back to our court.

. . . . .

Jim: I am taking the liberty to reply to you and to all those involved in the ESPOL endeavor in hopes that my reply will generate collective discussion. Let me say in brief that your assessment seems to me to be right on target in all areas. I have not yet visited Guayaquil, but I have been active with visits from our colleagues from ESPOL and in the pre-training course, but in general, my perceptions of our current problems are much as your own.

I want, however, to reaffirm my belief that in the perspective of WPI's total Globalization Initiative our collaboration with ESPOL is very important and has been very successful in terms of what our students have learned and in terms of how it has affected them positively. This is something about which I have some knowledge from talking with these students.

I believe that if we can initiate a thorough discussion of these issues via the "e-waves" then we can address the problems that we currently face, and I invite our colleagues at ESPOL, as well as the rest of you at WPI, to join me, and Jim, and Jim, in talking through our linkage via electronic mail.

Bland Addison

In addition to the specific concerns as discussed in the needs assessment, the P.I. would like to list the following items:

- (1) Funding issues are central to much of the topics leading to sustainability of the linkage.
- (2) Clear institutional committment are needed by both WPI and ESPOL. It is not clear to the P.I. that firm relationships have been established between key researchers in the two institutions. The reasons for this are complex and are probably due to the structures of the institutions and the associated organizational behaviors. Until mutual benefits are realized by all involved parties, committment will be limited.

Once these two general areas are addresses, all other problems will be solved. To achieve these goals, communications must be clear and open and both institutions must develop keen cultural sensitivities.

# **APPENDIX A**

Report Submitted to:  
Susan Vernon-Gerstenfeld  
Ecuador Project Center  
By

Allan Concepción  
Francisco Pereyó  
Obadiah Plante

*Allan Concepción*  
*Francisco Pereyó*  
*Obadiah Plante*

In Cooperation With  
Daniel Tapia Falconi- Professor Earth Sciences  
Escuela Superior Politecnica del Litoral- Guayaquil

## **URBAN WASTE MANAGEMENT IN GUAYAQUIL, ECUADOR**

Dec. 2, 1993

This project report is submitted in partial fulfillment of the degree requirements of Worcester Polytechnic Institute. The views and opinions expressed herein are those of the authors and do not necessarily reflect the positions or opinions of ESPOL or Worcester Polytechnic Institute.

This report is the product of an education program, and is intended to serve as partial documentation for the evaluation of academic achievement. The report should not be construed as a working document by the reader.

# **APPENDIX B**

Report Submitted to:  
Susan Vernon-Gerstenfeld  
Ecuador. Project Center

By

Antoinette Burns

Laura Guillette

Navin E. Rajashekar

Rudy Soriano

Antoinette Burns  
Laura Guillette  
Navin E. Rajashekar  
Rudy Soriano

In Cooperation With

DR. Francisco Romay and ING. Jorge Duque

Mechanical Engineering Department

Escuela Superior Politecnica del Litoral

POLLUTION GENERATED BY PRODUCTIVE ACTIVITIES

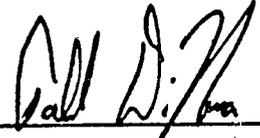
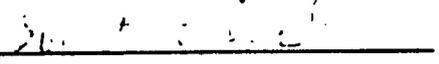
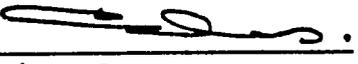
December 4, 1993

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# **APPENDIX C**

Project Report Submitted to:  
Professor Susan Vernon-Gersteinfeld  
Ecuador Project Center

By   
Todd DiNoia \_\_\_\_\_  
Spirit Joseph  \_\_\_\_\_  
Eduardo Mendez  \_\_\_\_\_  
Vail Mosier  \_\_\_\_\_

In Cooperation With  
Ing. Hector Ayon Yo, Director Center of Continuing Education  
Dr. Alfredo Barriga, Head of Mechanical Engineering  
Oce. Sonia Pizzaro, Professor of Marine Sciences

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Escuela Superior Politecnica del Litoral

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## SUSTAINABLE DEVELOPMENT FOR COMMUNITY PLANNING

December, 1993

This project report is submitted as partial fulfillment of the degree requirements of the Worcester Polytechnic Institute. The views and opinions expressed herein are those of the authors and do not necessarily reflect the positions or opinions of the United States Agency for International Development, the Escuela Superior Politecnica del Litoral of Ecuador, or the Worcester Polytechnic Institute of Massachusetts.

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# **APPENDIX D**

**Courses to be offered at ESPOL  
8-12 de noviembre, 1993  
Professor Arturo Gerstenfeld**

**MANAGING INNOVATION**

- Day 1      How Best to Manage Innovation in These Lean Times**
- Day 2      Benchmarking (Competition, progress, measurements, etc.)**
- Day 3      Anatomy of Successful Innovations**
- Day 4      Innovation Strategy**
- Day 5      Action Plan Toward Continuous Innovation**

- LEGITIMIZING NEW VIEWPOINTS
- TACTICAL SHIFTS AND PARTIAL SOLUTIONS
- BROADENING POLITICAL SUPPORT
- STRUCTURING FLEXIBILITY

- **POCKETS OF COMMITMENT**
- **FOCUSING THE ORGANIZATION**
- **MANAGING COALITIONS**

- CLOSELY RELATED PRODUCTS
- FOCUSED R&D
- LEADING FIRM'S R&D = 1.5-2.00 X IND.  
AVG.  
(% OF SALES)
- CONSISTENT PRIORITIES RUNNING DEEP

- ADAPTABILITY - PROJECT FOCUS WITH MAJOR DIRECTION AND RAPID CHANGE WHEN NECESSARY
- R&D/MARKETING INTERFACE
- TEAM COHESION - FLOW OF IDEAS, TRUST, RESPECT
- GOOD COMMUNICATION

- INNOVATION REQUIRES COMMUNICATION
- INNOVATION REQUIRES MORE LISTENING THAN TALKING
- INNOVATION REQUIRES HOURS OF "EYEBALL-TO EYEBALL"

## BENCHMARKING

- THE PAST TWO YEARS SHOW CONTINUING INTEREST IN COOPERATIVE RESEARCH ACROSS COMPANIES
- 48% OF RECENT SURVEY SHOWS AN INCREASE IN ALLIANCES AND JOINT VENTURES FOR NEW INNOVATIONS
- 26% EXPECT TO INCREASE LICENSING

- BUILD A STRATEGIC FOCUS AROUND THE THINGS YOUR BUSINESS DOES WELL - THEN STRIVE FOR INNOVATION WITHIN THAT FOCUS
- INNOVATION REQUIRES DISCIPLINED FOCUS ON BUSINESS'S UNIQUE STRENGTHS.
- IDENTIFY YOUR BUSINESS'S UNIQUE STRENGTHS
- IDENTIFY RADICAL (AND INCREMENTAL) INNOVATIONS WITHIN YOUR BUSINESS

**INNOVATION REQUIRES PERSISTENCE AND  
QUESTIONS TO BE ANSWERED:**

- **DOES THE INNOVATION FIT THE FOCUS OF THE BUSINESS?**
- **DOES THE INNOVATION BUILD ON THE UNIQUE CAPABILITIES OF THE BUSINESS?**
- **CAN THIS INNOVATION HELP YOUR COMPANY ESTABLISH LEADERSHIP?**

THOMAS EDISON STATED THAT HIS GREATEST  
INVENTION WAS THE LABORATORY

CRITICAL POINTS

- THINK IN TERMS OF WHOLE SYSTEMS
- CUSTOMER DRIVEN
- CONTINUOUS IMPROVEMENT
- CONTINUOUS LEARNING

- **SUCCESSFUL PROJECT TEAMS MUST HAVE A CLEAR GOAL**
- **THE EXACT PATH IS OFTEN UNCLEAR**
- **GET BEYOND RATIONAL ANALYSIS, ONE SHOULD NOT DISMISS "INSTINCT"**
- **EXAMPLES: VELCRO  
ZIPLOC BAGS  
POST-IT NOTES  
FED EX  
CNN**

# **APPENDIX E**

December 21, 1993

Ms. Lisa M. Jernberg  
Director, Graduate Management Programs

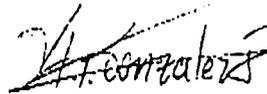
Dear Lisa,

I am now in the United States in the State of Massachusetts awaiting for your answer concerning my acceptance in Worcester Polytechnic Institute. With regard to your decision, I'd like to include the following points.

1. The agreement which WPI has with the ESPOL is a special agreement among Universities that is related to AID. In the rules you referenced on September 8, 1993, Handbook 10 supplement 12A, 10 [a.] [b.], it is stated that in order to continue with the program to an academic level, the minimum score required in TOEFL is 500.
2. The score I achieved was 507. Initially I would only have to take a partial academic schedule. As AID recommends to all their students that in the beginning of the academic program the courses list include courses in English in order to adapt to the American educational system. I have surpassed the minimum score required by AID in order to go on with the program (Handbook 10, supplement 12A, 10 [a.] [b.]).

I solicit you to reconsider your conditional acceptance to the University of Worcester Polytechnic. I am very interested in your program and am very eager to start on January 10th in the Master of Science in Management degree program.

Sincerely,



Victor Hugo Gonzalez Jaramillo



Department of Management  
100 Institute Road  
Worcester, MA 01609-2280  
(508) 831-5218  
FAX: (508) 831-5720

December 15, 1993

Mr. Edgar E. Izquierdo  
c/o Ms. Mary Eckert  
American Language Academy  
Baldwin-Wallace College  
Berea, Ohio 44017

Dear Edgar:

We have just received your official TOEFL results. We regret to inform you that admission to WPI will not be possible for the Spring 1994 semester. Although we understand that you made good progress with your training, we were sorry to find that you did not meet the 550 minimum score required by WPI. Therefore, the provision of your admission, which was that you submit TOEFL scores that meet WPI's minimum requirement, has not been met (refer to acceptance letter dated September 8, 1993, Handbook 10 pages 12-1 (12.B.2) and 12-4 (12.E.1.2) (attached).

Recognizing your academic credentials and your desire to pursue graduate studies at Worcester Polytechnic Institute, we want you to know that our offer for you to attend WPI will remain open for one year. Should you take additional language training and subsequently pass the TOEFL, we will admit you to the next academic semester after you successfully meet the provision of your admission.

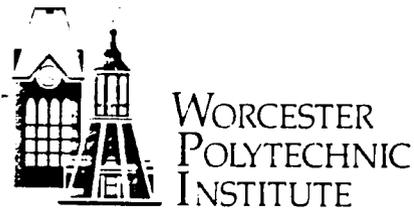
We realize that you had planned to remain in the United States after your language training and we understand that this must be a disappointment to you. However, we hope that you will plan to do what is necessary to take advantage of the opportunity that is still open to you by satisfying the entry requirements of this institution. We wish you every success.

Sincerely,

Professor James E. Rollings  
Director of Latin American Programs  
(508) 831-5664  
(508) 831-5485 (fax)

Lisa M. Jernberg  
Director, Graduate Management Programs  
(508) 831-5561  
(508) 831-5720 (fax)

CC: Carlos Becerra, Alfredo Torrez, Catalena Leon, Ruth Frischer, Mary Ekert, Helen Vassallo, Tom Tompsen, Betty Jolie



Department of Management  
100 Institute Road  
Worcester, MA 01609-2280  
(508) 831-5218  
FAX: (508) 831-5720

December 15, 1993

Mr. Victor Hugo Gonzalez-Jaramillo  
c/o Ms. Mary Eckert  
American Language Academy  
Baldwin-Wallace College  
Berea, Ohio 44017

Dear Victor:

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Recognizing your academic credentials and your desire to pursue graduate studies at Worcester Polytechnic Institute, we want you to know that our offer for you to attend WPI will remain open for one year. Should you take additional language training and subsequently pass the TOEFL, we will admit you to the next academic semester after you successfully meet the provision of your admission.

We realize that you had planned to remain in the United States after your language training and we understand that this must be a disappointment to you. However, we hope that you will plan to do what is necessary to take advantage of the opportunity that is still open to you by satisfying the entry requirements of this institution. We wish you every success.

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Director of Latin American Programs  
(508) 831-5664  
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Director, Graduate Management Programs  
(508) 831-5561  
(508) 831-5720 (fax)

CC: Carlos Becerra, Alfredo Torrez, Catalena Leon, Ruth Frischer, Mary Ekert, Helen Vassallo, Tom Tompsen, Betty Jolie



Student Life Office  
100 Institute Road  
Worcester, MA 01609-2280  
(508) 831-3201  
FAX: (508) 831-5581

November 30, 1993

Mr. Victor Hugo Gonzales-Jaramillo  
American Language Academy  
Baldwin-Wallace College  
Berea OH 44017

Dear Mr. Gonzales-Jaramillo,

Congratulations on your admission to the graduate program in the management department. I look forward to welcoming you to Worcester Polytechnic Institute.

Enclosed you will find your Certificate of Eligibility for Exchange (J-1) Status, also known as an IAP-66 form. In addition, you will find a form I-539 Application to Change Nonimmigrant Status. Because some of the funding is from A.I.D. you are required to attend WPI on a J-1 visa. Since you are already in the U.S. in F-1 status, you must submit an application for change of status.

I am sure Mary Eckert at American Language Academy can assist you with this procedure. Since you will be coming to Worcester on December 20, 1993, I would suggest that you file your change of status application with the INS Eastern Service Center, 75 Lower Welden Street, St. Albans, VT 05479-0001 using the c/o Management Department at WPI as your address. With form I-539 you submit your IAP-66, your I-94, copy of your letter of admission from Lisa Jernberg and a \$70 application fee (check payable to INS).

I am also enclosing a WPI Immunization Record Form which should be completed before you arrive at WPI. Upon your arrival at WPI, please report to the Management Department and the Student Life Office.

I look forward to meeting you. Please do not hesitate to contact me if you have any questions.

Sincerely,

Tom Hartvig Thomsen  
Associate Dean of Student Life and  
International Student Advisor

cc: Graduate Admissions  
Lisa Jernberg, Management ✓

35

United States Information Agency EXCHANGE VISITOR FACILITATIVE STAFF GC/V CERTIFICATE OF ELIGIBILITY FOR EXCHANGE VISITOR (J-1) STATUS

D 205514

1 GONZALES-JARAMILLO Victor Hugo (FAMILY NAME OF EXCHANGE VISITOR) (FIRST NAME) (MIDDLE NAME) (X) Male ( ) Female born 04 01 61 in Guayaquil Ecuador a citizen of Ecuador EC a legal permanent resident of Ecuador EC whose position in that country is Professor 213 U.S. address c/o Department of Management Worcester Polytechnic Institute 100 Institute Rd. Worcester, MA 01609

THE PURPOSE OF THIS FORM IS TO 1 (X) Begin a new program ( ) Accompanied by immediate family members 2 ( ) Extend an on-going program 3 ( ) Transfer to a different program 4 ( ) Replace a lost form 5 ( ) Permit visitor's immediate family ( ) members to enter U.S. separately.

2 will be sponsored by Worcester Polytechnic Institute to participate in Exchange Visitor Program No. P 1 3104 which is still valid and is officially described as follows: A program to provide courses of study, research, teaching, lecturing or a combination offered in the various fields of instruction and research conducted by Worcester Polytechnic Institute, for qualified foreign students, trainees, guest instructors, visiting professors and specialists, in the general interests of the international academic exchange

3 This form covers the period from 01 10 94 to 12 18 95 Students are permitted to travel abroad & maintain status (e.g. obtain a new visa) under duration of the program as indicated by the dates on this form. If this form is for family travel or replaces a lost form, the expiration date on the exchange visitor's I-94 is

4 The category of this visitor is 1 (X) Student, 2 ( ) Trainee, 3 ( ) Teacher, 4 ( ) Professor, Research Scholar or Specialist, 5 ( ) International Visitor, 6 ( ) Medical Trainee, 7 ( ) Alien employee of the USIA. The Specific field of study, research, training or professional activity is 3510 verbally described as follows: Master of Science in Management (SubField Code)

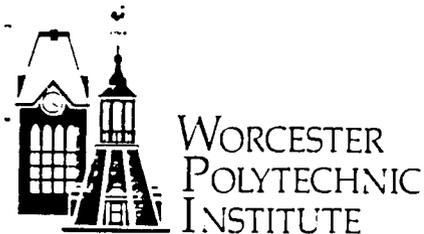
5 During the period covered by this form, it is estimated that the following financial support (in U.S. \$) will be provided to this exchange visitor by: a (X) The Program Sponsor in item 2 above \$ 20,000.00 (tuition) This Program Sponsor has (X) has not ( ) (check one) received funding for international exchange from one or more U.S. Government Agency(ies) to support this exchange visitor. If any U.S. Government Agency(ies) provided funding, indicate the Agency(ies) by code A I D. Financial support from organizations other than the sponsor will be provided by one or more of the following: b1 (X) U.S. Government Agency(ies): AID (Agency Code) \$20,700.00 b2 ( ) (Agency Code) \$ c1 ( ) International Organization(s): (Int Org Code) \$ c2 ( ) (Int. Org Code) \$ d ( ) The Exchange Visitor's Government \$ e ( ) The binational Commission of the visitor's Country \$ f ( ) All other organizations providing support \$ g ( ) Personal funds \$ (If necessary, use above spaces for funding by multiple U.S. Agencies or Intl Organizations)

6 INS USE

7 Tom Hartvig Thomsen, Associate Dean of Student Life (Name of Official Preparing Form) (Title) 100 Institute Road, Worcester, MA 01609 (Address) (Signature of Responsible Officer or Alternate R.O.) 11/29/93 (Date)

PRELIMINARY ENDORSEMENT OF CONSULAR OR IMMIGRATION OFFICER REGARDING SECTION 212 (e) OF THE INA. 1 (Name) (Title) have determined that this alien in the above program 1. ( ) is not subject to the two year residence requirement 2. ( ) is subject based on - A. ( ) government financing and/or B. ( ) the Exchange visitor skills list and/or C. ( ) PL 94 484 as amended The United States Information Agency reserves the right to make the final determination (Signature of Officer) (Date)

8. STATEMENT OF RESPONSIBLE OFFICER FOR RELEASING SPONSOR (FOR TRANSFER OF PROGRAM) Date, Transfer of this exchange visitor from program No. sponsored by to the program specified in item (2) is necessary or highly desirable and is in conformity with the objectives of the Mutual Educational and Cultural Exchange Act of 1961. (Signature of Officer) (Date)



Student Life Office  
100 Institute Road  
Worcester, MA 01609-2280  
(508) 831-5201  
FAX: (508) 831-5581

**November 30, 1993**

**Mr. Edgar Eugenio Izquierdo  
American Language Academy  
Baldwin-Wallace College  
Berea OH 44017**

Dear Mr. Izquierdo,

Congratulations on your admission to the graduate program in the management department. I look forward to welcoming you to Worcester Polytechnic Institute.

Enclosed you will find your Certificate of Eligibility for Exchange (J-1) Status, also known as an IAP-66 form. In addition, you will find a form I-539 Application to Change Nonimmigrant Status. Because some of the funding is from A.I.D. you are required to attend WPI on a J-1 visa. Since you are already in the U.S. in F-1 status, you must submit an application for change of status.

I am sure Mary Eckert at American Language Academy can assist you with this procedure. Since you will be coming to Worcester on December 20, 1993, I would suggest that you file your change of status application with the INS Eastern Service Center, 75 Lower Welden Street, St. Albans, VT 05479-0001 using the c/o Management Department at WPI as your address. With form I-539 you submit your IAP-66, your I-94, copy of your letter of admission from Lisa Jernberg and a \$70 application fee (check payable to INS).

I am also enclosing a WPI Immunization Record Form which should be completed before you arrive at WPI. Upon your arrival at WPI, please report to the Management Department and the Student Life Office.

I look forward to meeting you. Please do not hesitate to contact me if you have any questions.

Sincerely,

**Tom Hartvig Thomsen  
Associate Dean of Student Life and  
International Student Advisor**

cc: Graduate Admissions  
Lisa Jernberg, Management ✓

United States Information Agency  
EXCHANGE VISITOR FACILITATIVE STAFF GC/V  
CERTIFICATE OF ELIGIBILITY FOR EXCHANGE VISITOR (J-1) STATUS

D 205515

1 IZQUIERDO Edgar Eugenio  Male  
(FAMILY NAME OF EXCHANGE VISITOR) (FIRST NAME) (MIDDLE NAME)  Female  
born 06 28 58 in Guavaquil Ecuador  
(Mo.) (Day) (Yr.) (City) (Country)  
a citizen of Ecuador EC a legal permanent resident of  
(Country) (Code)  
Ecuador EC, whose position in that country is

THE PURPOSE OF THIS FORM IS TO:  
1  Begin a new program ( ) Accompanied by immediate family members  
2 ( ) Extend an on-going program.  
3 ( ) Transfer to a different program  
4 ( ) Replace a lost form.  
5 ( ) Permit visitor's immediate family ( ) members to enter U.S. separately.

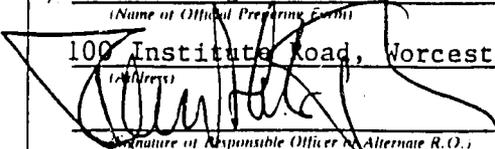
Associate Professor 213 U.S. address c/o Department of Management  
(Pos. Code) Worcester Polytechnic Institute  
100 Institute Rd.  
Worcester, MA 01609

2. will be sponsored by Worcester Polytechnic Institute  
to participate in Exchange Visitor Program No. P 1 3104, which is still valid and is officially described as follows:  
A program to provide courses of study, research, teaching, lecturing or a combination offered in the various fields of instruction and research conducted by Worcester Polytechnic Institute, for qualified foreign students, trainees, guest instructors, visiting professors and specialists, in the general interests of the international academic exchange

3. This form covers the period from 01 10 94 to 12 18 95. Students are permitted to travel abroad & maintain status (e.g. obtain a new visa)  
(Mo.) (Day) (Yr.) (Mo.) (Day) (Yr.)  
under duration of the program as indicated by the dates on this form.  
If this form is for family travel or replaces a lost form, the expiration date on the exchange visitor's I-94 is

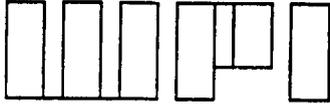
4. The category of this visitor is 1 (  ) Student, 2 ( ) Trainee, 3 ( ) Teacher, 4 ( ) Professor, Research Scholar or Specialist, 5 ( ) International Visitor, 6 ( ) Medical Trainee, 7 ( ) Alien employee of the USIA. The Specific field of study, research, training or professional activity is 3510 verbally described as follows:  
(SubyField Code)  
Master of Business Administration

5. During the period covered by this form, it is estimated that the following financial support (in U.S. \$) will be provided to this exchange visitor by:  
a  The Program Sponsor in item 2 above \$ 20,000.00 (tuition)  
This Program Sponsor has  has not  (check one) received funding for international exchange from one or more U.S. Government Agency(ies) to support this exchange visitor. If any U.S. Government Agency(ies) provided funding, indicate the Agency(ies) by code A I D.  
Financial support from organizations other than the sponsor will be provided by one or more of the following:  
b1  U.S. Government Agency(ies): AID (Agency Code). \$ 20,700.00 b2 (Agency Code). \$  
c1 ( ) International Organization(s): (Int. Org. Code). \$ c2. (Int. Org. Code). \$  
d ( ) The Exchange Visitor's Government \$ (If necessary, use above spaces for funding by multiple U.S. Agencies or Intl. Organizations)  
e ( ) The Binational Commission of the visitor's Country \$  
f ( ) All other organizations providing support \$  
g. ( ) Personal funds \$

6. I.N.S. USE  
7 Tom Hartvig Thomsen, Associate Dean of Student Life  
(Name of Official Preparing Form) (Title)  
100 Institute Road, Worcester, MA 01609  
(Address)  
  
Signature of Responsible Officer or Alternate R.O. 11/29/93  
(Date)

PRELIMINARY ENDORSEMENT OF CONSULAR OR IMMIGRATION OFFICER REGARDING SECTION 212 (e) OF THE I.N.S.  
1. (Name) \_\_\_\_\_  
(Title) \_\_\_\_\_  
have determined that the alien in the above program  
1. ( ) is not subject to the two year residence requirement.  
2. ( ) is subject based on: A. ( ) government financing and/or B. ( ) the Exchange visitor skills test and/or C. ( ) PL 94 484 as amended.  
The United States Information Agency reserves the right to make the final determination.  
(Signature of Officer) (Date)

8. STATEMENT OF RESPONSIBLE OFFICER FOR RELEASING SPONSOR (FOR TRANSFER OF PROGRAM)  
Date \_\_\_\_\_ Transfer of this exchange visitor from program No. \_\_\_\_\_ sponsored by \_\_\_\_\_ to the program specified in item (2) is necessary or highly desirable and is in conformity with the objectives of the Mutual Educational and Cultural Exchange Act of 1951.  
(Signature of Officer) (Date)



## MEMORANDUM

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DATE: November 22, 1993

TO: Dr. Ruth Frischer, UDLP Director

FROM: Lisa Jernberg, Director of   
Graduate Management Programs

DEPARTMENT

OF

MANAGEMENT

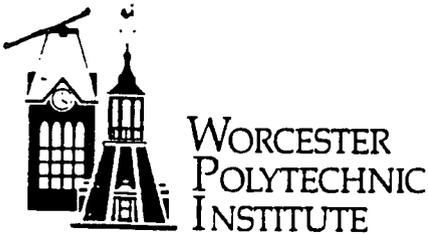
SUBJECT: Victor Gonzalez and Edgar Izquierdo

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I was told that a copy of the ALI/GU exam results for Victor Gonzalez and Edgar Izquierdo was sent to you directly by the A.I.D. Mission in Quito. Were they? From the results, it is clear that they did not pass the exams. Therefore, these individuals will be taking the TOEFL exam after they complete their English Language Course at the American Language Academy in Ohio. The TOEFL test date is set for December 10. Our contact there, Mary Eckert, will contact me as soon as she has the test scores (possibly by December 12) to give me an indication of whether or not they passed.

A question for you Ruth. What is our course of action should these people not do well on their TOEFL? I will call you tomorrow to discuss our options.

I hope your conference was a success!



Department of Management  
100 Institute Road  
Worcester, MA 01609-2280  
(508) 831-5218  
FAX: (508) 831-5720

November 17, 1993

Mr. Victor Hugo Gonzalez-Jaramillo  
c/o Ms. Mary Eckert  
American Language Academy  
Baldwin-Wallace College  
Berea, Ohio 44017

Dear Victor:

Welcome to America! I wanted to get a letter to you and Victor to confirm some important dates.

I understand that you will be traveling to Worcester on December 20th. Please plan to stop by my office the day you arrive in Worcester so I may help you to get settled. In regards to housing, I will plan to fax you a copy of the "available housing list" on December 1st so you may begin to look for a place to live. If you want to wait until you arrive on campus to secure an apartment, that is fine also. Either way, I will see that you have a place to stay until you locate more permanent housing.

Ms. Eckert will forward a copy of your TOEFL test results to me as soon as they become available to her. I understand that you are scheduled to take the TOEFL on December 10th.

You officially report to the Department of Management for your research assistantship position on Monday, January 10, 1994. In exchange for the stipend amount and tuition waiver agreed upon, you will work 20 hours per week. I have indicated to A.I.D. Washington that your program will be completed no later than December 22, 1995 at which time you must return to Ecuador. We will work out your specific schedules and responsibilities on January 10th. Classes begin January 17th.

Your HAC insurance coverage will begin the first day of your employment at WPI, January 10th. In regards to your visa, Tom Tompsen in our student life office is forwarding the forms necessary to convert your F1 visa to the J1 visa required by A.I.D. To ensure that you have the appropriate visa for employment reasons, please see that the required forms are completed and returned without delay.

If you have any other questions prior to your arrival at WPI, please give me a call at (508) 831-5561.

Sincerely,

*Lisa M. Jernberg*

Lisa M. Jernberg  
Director, Graduate Management Programs

cc: Mary Eckert  
James Rollings

*also faxed to Carlos Becerra*

November 9, 1993.

Ms. LISA M. JERBERG

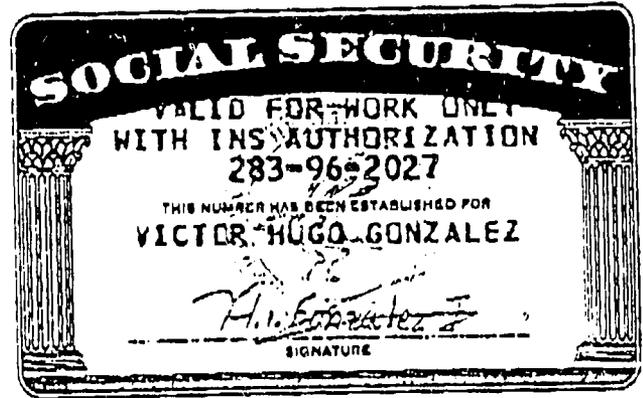
FAX: (508) 831-5720

Will need to show passport and ss card when completing payroll authorization forms, before they can get paid.

Should complete payroll Authorizations to run from January 10 - June 30th, then submit updated one from June 30th to? Check with Janice in HR in June.

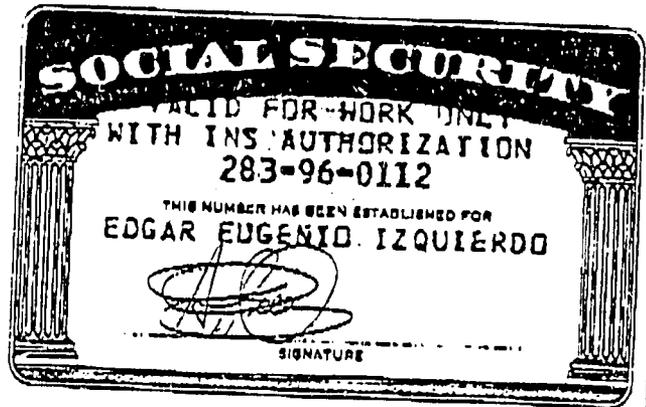
### YOUR SOCIAL SECURITY CARD

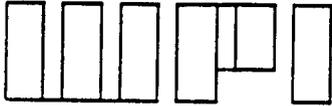
Detach the card below and sign it in ink immediately.  
Do not laminate your card.  
Carry it in your purse or wallet.



### YOUR SOCIAL SECURITY CARD

Detach the card below and sign it in ink immediately.  
Do not laminate your card.  
Carry it in your purse or wallet.





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**MEMORANDUM**

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**DATE:** November 8, 1993

**TO:** Monica Urbano, A.I.D. Training Officer

**FROM:** Lisa Jernberg, Director of   
Graduate Management Programs

DEPARTMENT  
OF  
MANAGEMENT

**SUBJECT:** ALIGU Exam Verification

---

Two individuals who have been accepted to the graduate management programs at Worcester Polytechnic Institute have, from what I have been told, taken their ALIGU exams at the A.I.D. Mission in Quito. I am in the process of completing the PIO/P, Participant Data, and Biographical Data forms for Victor Hugo Gonzalez-Jaramillo and Edgar Eugenio Izquierdo. One section asks for the following:

Date ALIGU exam was taken?

Scores received (usage, oral, vocabulary, reading, listening)?

Did they pass?

Ms. Urbano, could you possibly fax me the answers to these questions so I may forward the completed forms to the A.I.D. Office in Washington. Also, WPI had indicated that we would waive the TOEFL requirement (550 minimum) if these individuals passed the ALIGU to the A.I.D. Mission in Quito's satisfaction. Based on their ALIGU results, could you also indicate whether or not the Mission would sign off on their language skills as being acceptable or should I require them to take the TOEFL exam this fall. The American Language Academy in Ohio (where these individuals are presently studying english) is awaiting further instructions from me.

Thank you for your assistance with this one outstanding matter. My fax number is (508) 831-5720, my phone number is (508) 831-5561.



Department of Management  
100 Institute Road  
Worcester, MA 01609-2280  
(508) 831-5218  
FAX: (508) 831-5720

October 29, 1993

Mr. Dennis Maloney  
ESPOL

At the time of his visit to WPI in September, I handed Dr. Alfredo Barriga Rivera a set of questions that needed to be clarified prior to my submitting a P.I.O.P., Participant Data and Biographical Data Form, for Victor Hugo Gonzalez and Edgar Iquiero, to the A.I.D. University Center in Washington. I have yet to submit these forms because I have not, as of today, received the requested response.

However, I have been contacted by A.I.D. in Washington urging me to submit the forms as soon as possible. I have also found out, through professor Rollings, that these individuals have taken and passed their ESL exam with the A.I.D. Mission in Quito, and that they are presently in the United States (Ohio) participating in an English Language Training program.

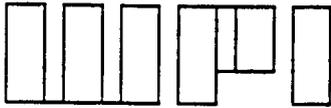
So that I may follow-through on my obligation and submit the required forms from WPI, could you possibly fax answers to these questions back to me as soon as conveniently possible.

If you have any questions, please call me at (508) 831-5561, or fax me at (508) 831-5720. Thank you, in advance, for your help with this request.

Sincerely,

Lisa M. Jernberg  
Director, Graduate Management Programs

- Additional Answers needed:
- Correct/full address of student's present employer (which ESPOL address should I use).
  - What type of VISA are they here under (J1 or tourist)?
  - When was the ESL test given, did they pass?



## MEMORANDUM

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DATE: September 16, 1993

TO: Carlos Becerra, ESPOL

FROM: James Rollings & Lisa Jernberg

SUBJECT: Response to Fax Dated September 9, 1993

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DEPARTMENT  
OF  
MANAGEMENT

I'm sure that this process will continue to be a learning experience for all of us.

We have been in constant dialogue with A.I.D. Washington since our meeting in Guayaquil. However, after receiving your fax the other day, Lisa and I met to discuss further the A.I.D. rules and regulations pertaining to the situation outlined in your correspondence. At that time we also received feedback from A.I.D. Washington regarding the dependent and financial issues waivers requested. Our initial understanding from Washington was the driving force that precipitated the fax to A.I.D. Washington.

Our primary concern has been and always will be to assure that ESPOL faculty/graduate students be treated as peers within the WPI graduate system.

A.I.D. has had policies wherein any host country contributions are audited and considered along with any A.I.D. financial contributions. Having now spoken with different parties dealing directly with the specific waivers, we have been informed that new policies soon will be in place in Washington that will permit ESPOL's host country contribution to be considered as separate from the monthly allowable living allowance. Therefore, instead of the living allowance being calculated as \$400 from ESPOL, and \$692 from A.I.D. funds for a total of \$1,092, we agree with A.I.D.'s calculated expenses. As a result, our waiver request on this issue has been withdrawn.

Considering the above, the new monthly amount for graduate students will be \$865 (maximum allowable by A.I.D.) from A.I.D. and \$400 from ESPOL for a total monthly living allowance of \$1,265. This places ESPOL graduate students above WPI's current maximum stipend. As this will be paid over a twelve month period (\$15,180 total yearly) this number should be compared to normal WPI graduate students who are typically only supported for nine months (11,904 total yearly).

In the terms of the Cooperative Agreement, WPI and ESPOL are expected to secure from external agencies (e.g. IDB, UNLP, etc.) additional support on the order of \$400,000 for

graduate research. This underscores the importance of the workshop scheduled next week here at WPI. WPI seeks a sustainable linkage with ESPOL.

Touching upon the dependent travel to the U.S. issue, we also received feedback on the possibility of having a waiver approved. It appears that A.I.D. has explicit rules on this issue. We are forwarding to you chapter 15 of Handbook 10 (attached) dealing with this subject. Our contacts in Washington suggest that you speak directly with the A.I.D. Mission Office in Quito regarding this subject. Several key points were made that may help guiding your discussions with the Mission Office:

- \* The six month time frame technically begins when the student actually arrives in U.S. for the beginning of the A.I.D. sponsored program. Travel to the U.S. for language training may not be considered as part of the six month duration.
- \* A.I.D. may consider extenuating circumstances supporting a waiver such as: children speaking english who must attend school in the U.S. in a timely manner, prior visits to the U.S. easing the trainee's cultural transition, availability of funds for full year of family support in U.S. banks (50% of the A.I.D. stipend per dependent), return airfare, insurance, etc. (refer to A.I.D. Mission in Quito for further details). Our understanding is that A.I.D. Washington listens strongly to the recommendations of the host country Mission on this issue.

In approaching A.I.D. Quito, we believe that it's most important to have complete documentation on dependents according to A.I.D. rules. This includes health and accident coverage, pre-departure medical exams, and financial documentation (again, see chapter 15 of Handbook 10). If the dependents' presence adds to the student's program and if all items noted above are satisfied, then A.I.D. may be more open to a waiver request.

On another point, we understand that A.I.D. has, under some conditions, accepted institutional TOEFL results in place of the Official TOEFL. You might want to speak with the A.I.D. Mission in Quito regarding this issue. If taking the Official TOEFL delays program initiation, then a case for institutional TOEFL (providing the results are acceptable to the A.I.D. Mission) may be made.

If you have further questions on these issues, or information that you have gathered from Quito, please contact us at your convenience. Warmest regards and best wishes as we move forward.



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**MEMORANDUM**

DATE: September 8, 1993

TO: Carlos Becerra, ESPOL

FROM: Lisa Jernberg, Director of Graduate Management Programs *lj*

SUBJECT: Victor Gonzalez and Edgar Izquero

DEPARTMENT  
OF  
MANAGEMENT

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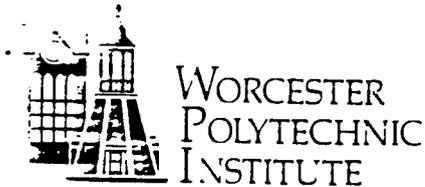
I met with Jim Rollings upon his return from Ecuador. It is unfortunate that he was not able to deliver the acceptance packages to Victor and Edgar because of the technicality (stipend amount greater than A.I.D. guidelines) associated with noting the stipend amount in the acceptance letter. The original acceptance letters were dated August 5, 1993.

In order to facilitate these individuals' trip to WPI, I am faxing revised acceptance letters that do not contain specific details about the research assistantship positions offered to Victor and Edgar. I will mail the originals out today. We are presently requesting a waiver of the A.I.D. monthly compensation figure and if/once received, a letter detailing the stipend amounts will be forwarded immediately. We are also requesting a waiver of the rule that restricts family from traveling to the U.S. until after the student has been here for six months. No indication has been given by A.I.D. as to what the chances are for receiving either of these waivers.

As noted in my prior fax to you, we are asking that both Victor and Edgar submit official TOEFL scores. I hope that you received the registration booklets that were express mailed to you several weeks ago.

Carlos, would you please forward to Victor and Edgar a copy of their acceptance letters along with a copy of the various attachments (except the cover memo addressed to you) faxed to you. You may wish to also keep a copy of this material for your records. If you have any other questions that require an immediate response, please fax me directly at (508) 831-5720.

cc: James Rollings



Department of Management  
100 Institute Road  
Worcester, MA 01609-2280  
(508) 831-5218  
FAX: (508) 831-5720

September 8, 1993

Mr. James Washington  
Director, O.I.T. &  
Ms. Jacqueline Truss  
Chair, O.I.T. Allowance Committee  
U.S. Agency for International Development  
SA16, Room 211  
Washington, D.C. 20523-1601

Dear Mr. Washington and Ms. Truss:

Two associate professors from ESPOL in Quito, Ecuador have been accepted to Worcester Polytechnic Institute's Graduate Management Programs. Through the WPI/ESPOL University Development Linkage Program, these individuals wish to attend WPI to expand their skills and knowledge in technical areas that will directly benefit Ecuador. As faculty members of ESPOL, they will also be able to pass on this knowledge to students in the M.B.A. program at that institution. We are hoping that these individuals will arrive in time to begin the Spring semester in January 1994.

Two items have arisen that we are told require a special waiver from your offices. The first is a waiver of the \$865 monthly living allowance, the second is a waiver of the rule that requires a student to be in the U.S. for six months before family/dependents may join them in the U.S..

1. A waiver, or exception to the established rates for the monthly living allowance, is being requested for the following reasons:
  - The \$865 is significantly less than what WPI typically pays its graduate assistants. At WPI, graduate stipends range from a low of \$992 (for inexperienced freshmen graduate students) to a high of \$1,208 (for senior, experienced graduate students) per month. We feel that the ESPOL student qualifications are mid-range within our normal guidelines. In order to appropriately recognize the professional status of these individuals, especially in relation to our present teaching assistants, and their research efforts, WPI has approved a monthly stipend of \$1,092 (\$400 ESPOL, \$692 A.I.D.). These students will be expected to conduct 20 hours of research per week in exchange for this amount. Students will be expected to pay for their books out of the stipend amount.

- These students are only partially A.I.D. funded. ESPOL has agreed to keep these individuals on retainer for \$400 per month which may require additional duties as set by ESPOL. These ESPOL requirements would be above and beyond the requirements of the WPI program. Please note that the requested A.I.D. contribution of \$692 is less than the allowable contribution of \$865.
2. A waiver of the rule that requires a student to be in the U.S. for six months before family/dependents may also travel to the U.S. is requested for the following reasons:
- One individual will be getting married several weeks before he leaves for the U.S. Because of his pending nuptials, his decision to accept the offer to attend WPI will depend greatly on the approval of this waiver request.
  - The other individual is married and has young, dependent children. He does not feel comfortable leaving his wife alone for six months prior to her being able to join him in the U.S. Again, his decision to accept the offer to attend WPI will depend greatly on the approval of this waiver request.

Both of these individuals hope to register for a language training school in the U.S., beginning October 15, if the appropriate waivers and approvals are received.

If you have questions regarding either of these requests, please feel free to contact either one of us directly. We look forward to your response.

Sincerely,

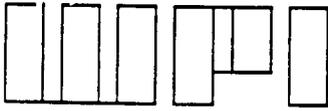


Professor James E. Rollings  
W.K. Kellogg Fellow  
Chemical Engineering Department  
(508) 831-5664  
(508) 831-5485 fax



Lisa M. Jernberg  
Director, Graduate Management Programs  
(508) 831-5561  
(508) 831-5720 fax

cc: Carlos Becerra, ESPOL



## MEMORANDUM

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DATE: September 8, 1993

TO: Carlos Becerra, ESPOL

FROM: Lisa Jernberg, Director of *LJ*  
Graduate Management Programs

DEPARTMENT

OF

MANAGEMENT

SUBJECT: Victor Gonzalez and Edgar Izquouiero

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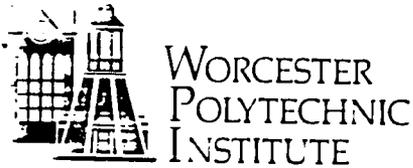
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cc: James Rollings



Department of Management  
100 Institute Road  
Worcester, MA 01609-2280  
(508) 831-5218  
FAX: (508) 831-5720

September 8, 1993

Mr. Edgar E. Izquierdo  
P.O. Box 09-04-164  
Guayaquil - Ecuador

Dear Edgar:

Your application for admission to graduate study at Worcester Polytechnic Institute has been carefully considered by the faculty of the Management Department. In accordance with their recommendation, I am pleased to offer you a provisional admission to the full-time graduate program leading to the Master of Business Administration degree for the January 1994 semester.

Originally, WPI had agreed to waive the TOEFL requirement of your admission. However, after detailed discussions with A.I.D. we have been informed that WPI must follow the A.I.D. Participant Training Guidelines in processing your visit to WPI. A.I.D. requires that you submit official TOEFL scores (550 or better required by WPI) to show your proficiency with the English language. Thus, this is the provision of your admission. Once the provision is met, your acceptance status will be upgraded to regular admission. I express mailed TOEFL registration booklets to Carlos Becerra several weeks ago just in case you did not have access to these directly. If a TOEFL test site is not readily accessible, A.I.D. would accept the ALI/GU EPT instead of the TOEFL. However, you would need to see if your local A.I.D. Mission is able to administer the test (see Chapter 12 of the AID Handbook 10, enclosed). It is important that A.I.D. requirements be satisfied in order to receive the appropriate support and clearance for your stay.

You have been accepted as a Research Assistant at WPI. Because we are presently discussing allowable stipend amounts with A.I.D., I will need to send a follow-up letter at a later time to detail the stipend and tuition allocations associated with the RA position.

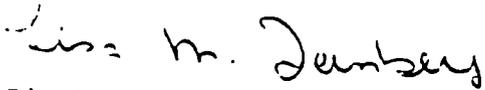
With regards to the specifics pertaining to your arrival at WPI, the A.I.D. Participant Training Program requirements are currently being verified (e.g. obtaining your J1 VISA, Medical Certification, Training Authorization Forms, Travel, Health Insurance, etc.). You will receive a separate letter detailing the process and paperwork required to "get you to Worcester" at a later date.

To outline your program options, I am forwarding four potential schedules from which you should select ONE. Although there is some flexibility with the courses being taken at the times listed, please note that the 19-20 and 24 month options have been designed to facilitate the timely completion of your degree. You will be required to choose either a 6 or 9 credit thesis, as outlined by the options provided. Please note that whichever program of study you select, you will need to maintain the academic

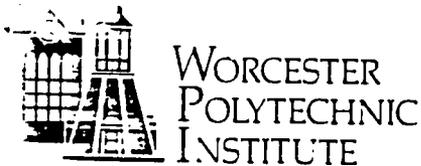
standards required by WPI. I am attaching a copy of the page from our Graduate Catalog detailing the graduate-level grading system at WPI.

Should you decide to accept our offer of admission, a deposit of \$50.00, payable to WPI, should be forwarded to the Management Department by December 1, 1993, along with the enclosed response card. This non-refundable deposit covers \$20 for the Graduate Student Organization Fee, and \$30 for the Orientation Fee. The \$100 additional deposit typically received from students has been waived.

Sincerely,



Lisa M. Jernberg  
Director, Graduate Management Programs



Department of Management  
100 Institute Road  
Worcester, MA 01609-2280  
(508) 831-5218  
FAX: (508) 831-5720

September 8, 1993

Mr. Victor Hugo Gonzalez  
508, Pycaza Y B. Moreno  
P.O. Box 5882  
Guayaquil - Ecuador

Dear Victor:

Your application for admission to graduate study at Worcester Polytechnic Institute has been carefully considered by the faculty of the Management Department. In accordance with their recommendation, I am pleased to offer you a provisional admission to the full-time graduate program leading to the Master of Science in Management degree for the January 1994 semester.

Originally, WPI had agreed to waive the TOEFL requirement of your admission. However, after detailed discussions with A.I.D. we have been informed that WPI must follow the A.I.D. Participant Training Guidelines in processing your visit to WPI. A.I.D. requires that you submit official TOEFL scores (550 or better required by WPI) to show your proficiency with the English language. Thus, this is the provision of your admission. Once the provision is met, your acceptance status will be upgraded to regular admission. I express mailed TOEFL registration booklets to Carlos Becerra several weeks ago just in case you did not have access to these directly. If a TOEFL test site is not readily accessible, A.I.D. would accept the ALI/GU EPT instead of the TOEFL. However, you would need to see if your local A.I.D. Mission is able to administer the test (see Chapter 12 of the AID Handbook 10, enclosed). It is important that A.I.D. requirements be satisfied in order to receive the appropriate support and clearance for your stay.

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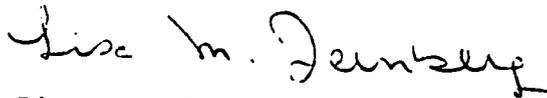
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Please note that whichever program of study you select, you will need to maintain the academic standards required by WPI. I am attaching a copy of the page from our Graduate Catalog detailing the graduate-level grading system at WPI.

Should you decide to accept our offer of admission, a deposit of \$50.00, payable to WPI, should be forwarded to the Management Department by December 1, 1993, along with the enclosed response card. This non-refundable deposit covers \$20 for the Graduate Student Organization Fee, and \$30 for the Orientation Fee. The \$100 additional deposit typically received from students has been waived.

Sincerely,

A handwritten signature in cursive script that reads "Lisa M. Jernberg". The signature is written in black ink and is positioned above the printed name.

Lisa M. Jernberg  
Director, Graduate Management Programs

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## CHAPTER 12

### ENGLISH LANGUAGE TRAINING AND TESTING

#### 12A. POLICY

It is AID policy that all participants prior to departure for training in the United States or a third country whose training is conducted in English and who will not be accompanied by an interpreter demonstrate a level of English language proficiency at or above the AID minimum acceptable scores for Call Forward for academic and non-academic training. If a training institution's English language proficiency requirements are higher than the AID minimum scores, then these will need to be met before full acceptance is obtained.

#### 12B. DEFINITIONS

1. ALI/GU EPT - The American Language Institute/Georgetown University English Proficiency Test (ALI/GU EPT) is an English proficiency test developed under contract by Georgetown University for the exclusive use of AID and is used to determine a candidate's level of English proficiency. (Supplement 12A). The ALI/GU EPT is administered at the mission by a designated member of the mission staff.

2. TOEFL - The Test of English as a Foreign Language (TOEFL) is a standard English proficiency test produced and administered by Educational Testing Service (ETS) and is required by most universities as part of the application process for non-native speakers of English. If TOEFL centers are located in the host country, arrangements should be made for candidates to take the test if TOEFL scores are required by the university. (Acceptable scores for admission to academic programs vary from institution to institution.)

#### 12C. REQUIREMENTS

1. Missions are to ensure that all participants, except those accompanied by an official interpreter and those whose programs are not conducted in English, have obtained the minimum required proficiency scores for Call Forward prior to departure (see Chapter 23 -- Interpreter and Escort Services).

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12C

2. Missions are responsible for arranging English language training (ELT) in the host country to enable participants to reach the AID minimum acceptable Call Forward scores for academic and non-academic training, and where feasible and cost effective, to meet the requirements of specific training institutions if these are higher than the AID minimum scores (see Chapter 9 -- Training Implementation Plan (TIP)).

3. Many universities and colleges re-evaluate foreign students upon arrival on campus to determine whether further ELT is needed. If participants do not meet the institution's language requirements, they may be subject to additional ELT, which will increase the length and cost of training.

4. Missions are to submit to OIT an annual "English Language Testing and Training Report for FY \_\_\_\_, " Control Symbol U-1380/7 (Attachment 12A), by February 17. This report is to be submitted annually through memorandum and is to include:

- a. the name of the English language training facility or facilities used in host country training;
  - b. the number of participants trained by weeks of study;
  - c. the total number of weeks of training completed in the fiscal year;
  - d. the average cost per week of training;
  - e. the total cost of ELT in the host country for the fiscal year and source of payment (United States or host country);
  - f. the number of participants trained in ELT in the United States or a third country for the fiscal year;
  - g. the total cost of ELT conducted in the United States or third country, nature of institutions providing training, and source of payment (mission or contractor);
  - h. the number of ALI/GU EPT tests administered in the fiscal year by specific forms used; and
  - i. problems, if any, encountered in ALI/GU EPT test administration and recommendations for solutions.
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12D. ENGLISH LANGUAGE TRAINING IN THE HOST COUNTRY

1. Missions are to arrange English language training in the host country to enable candidates to reach the required levels of proficiency before being programmed for participant training. Host country ELT programs should be capable of offering programs appropriate to the specific training objectives of the candidate's planned program.
2. Missions should evaluate local resources to determine whether the programs meet the requirements for in-country ELT. ELT resources may include:
  - a. local United States Information Agency (USIA) English language training facilities or Bi-National Centers;
  - b. ELT programs at local institutions;
  - c. ELT programs sponsored by other donor or United States Government agencies;
3. Standard requirements for an effective ELT program include:
  - a. a minimum of 25 hours per week of instruction;
  - b. a class size between 5 and 14 students;
  - c. qualified and experienced teachers of English as a Second Language;
  - d. a set of curriculum guidelines and performance objectives;
  - e. appropriate and varied class materials; and
  - f. an ongoing system for evaluating progress and level of proficiency.
4. Mission desiring to determine how ELT can appropriately be conducted for their participants may refer to the Decision Tree: Participant Training ELT (Supplement 12B).

12E. ENGLISH LANGUAGE TRAINING IN THE UNITED STATES

1. Missions that arrange English language training in the United States are to ensure this training is a supplement to, and not a substitute for, intensive ELT in the host country. Once participants have obtained the AID minimum Call Forward scores on ALI/GU EPT or

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12E1

TOEFL, they may be programmed for further ELT in the United States when this is required to reach a training institution's or program's requirements, if the training is not available in the host country.

2. The American Language Institute of Georgetown University (ALI/GU) is funded by AID for English language training, materials preparation, technical assistance to AID and missions, and test development. When participants are qualified for United States training but have marginal language proficiency, missions may request that OIT or its contractor/RSSA arrange ALI/GU training to upgrade the participants to a fully acceptable range (Supplement 12A).

3. English language training in the United States at institutions other than ALI/GU should be considered only if special programmatic benefits would accrue which would be beyond the scope of ALI/GU.

4. Participants who arrive in the United States or the country of training without an adequate level of English proficiency and who do not reach an acceptable level in a reasonable time may be terminated and returned home.

5. Neither ALI/GU nor any other English language training institution is in a position to guarantee that a participant will reach an acceptable level of English in a given time.

12F. ADVISORY SERVICES OF OIT

1. Missions are encouraged to review their language program periodically and to inform OIT of support needed to meet current and anticipated needs.

2. OIT can arrange to provide assistance for the following purposes:

- a. to evaluate on-going language training facilities;
- b. to assist in developing a language training program;
- c. to assist in developing mission testing procedures; and
- d. to advise on the kinds of English language training materials available.

A. INSTRUCTIONS ON THE ADMINISTRATION AND INTERPRETATION OF AMERICAN LANGUAGE INSTITUTE/GEORGETOWN UNIVERSITY ENGLISH PROFICIENCY TEST (ALI/GU EPT)

1. Test in Use

The ALI/GU EPT is comprised of the following three sections:

a. Section I: Listening Comprehension -

The candidate hears 50 short questions prerecorded on tape. During the pause which follows each item, the candidate reads the four possible answers in the test booklet and selects the one which would make the most appropriate answer to the utterance heard on tape. Time: 25 minutes.

b. Section II: Grammar and Usage -

This test, consisting of 50 multiple choice items, is designed to measure the candidate's control of English structure and covers such problems as word order, verb tenses and forms, idiomatic usage, nouns, adjectives, and pronoun forms. Time: 25 minutes.

c. Section III: Reading and Vocabulary -

Candidates will read five standard reading passages and answer 60 questions relating to content and vocabulary. Time: 60 minutes.

d. The total time needed to take the ALI/GU EPT is 110 minutes. The general directions, the listening comprehension test and the directions for the grammar and reading test are all recorded on one tape.

e. Each section of the ALI/GU EPT is scored, which gives three separate scores as well as a total score. Only one answer sheet is needed for the test.

2. Practice Test

A special Practice Test is available which is designed to familiarize candidates with test instruction and types of problems found in each of the sections of the ALI/GU EPT. This Practice Test should be given to all candidates sometime before they take the ALI/GU EPT, preferably several days or weeks.

3. Ordering Procedures for Materials

- a. Supplies of all test materials listed below can be ordered by telegram or memorandum addressed to the English Language Officer, A.I.D./OIT, Washington, D.C. 20523, and will normally be forwarded by air pouch to a designated Mission staff member (see 4a below) by name.
- b. Two forms of the new ALI/GU EPT are available: ALI/GU EPT Form A and ALI/GU EPT Form B. A test order would request
  - 1) ALI/GU EPT test books (reusable)
  - 2) Answer sheets
  - 3) Examiner's Instructions
  - 4) Scoring Keys
  - 5) Tapes (reel or cassette)
  - 6) Practice Tests
  - 7) User's Manuals
- c. ALI/GU EPT test books are reusable. A number of reusable scoring keys are sent with initial orders for each new form of the ALI/GU EPT. Subsequent shipments of the tests will not include additional scoring keys unless they are specifically requested by the Mission. The number of tests ordered should be limited to anticipated use for not more than a six month period. The approximate number of participants to be tested during that period should be stated.

4. Test Security Measures

- a. Each Mission which administers the ALI/GU EPT is to designate one, but no more than two, Americans on the Mission Staff to be responsible for ordering tests, maintaining local test security and administering the tests. The OIT English Language Officer should be advised of the name(s) of the individual(s) designated. The validity of the test results depends on the security of the tests and scoring keys and completed answer sheets and/or the proper administration of the tests. The importance of providing every possible safeguard for the ALI/GU EPT cannot be overemphasized.
- b. Test packages will be sent only to the designated Test Administrator and are to be opened by that person only. This officer is to maintain a permanent record of the serial numbers stamped on the cover of each test book. The tests are to be handled in the same manner as classified material. Damaged, retired or excess tests and scoring keys are to be disposed of in the same way as classified material. Careful inventories must be made at regular intervals to assure that adequate security is being maintained.

- c. If at any time a copy of a test book is found to be missing or if a test has been in the hands of an unauthorized person, use of that particular form of the ALI/GU EPT is to be immediately discontinued. All remaining copies of the test form are to be retained in a locked file pending further investigation of the security break. Details of the incident are to be reported promptly to the English Language Officer, AID /OIT, Washington, D.C. 20523.

5. Restrictive Use of ALI/GU EPT

The ALI/GU EPT is to be used solely for testing the level of English proficiency of prospective AID participants. It is not to be used for testing by other U.S. government agencies or by AID personnel or AID contractors, university or otherwise, for purposes of teaching, research, analysis for presentation at professional meetings, as teaching material in graduate courses in the Teaching of English as a Second Language, doctoral research, or for any such purposes whatsoever. Any infraction of this directive will be considered justification for denial to Missions thereafter of further use of the tests.

6. Frequency of ALI/GU EPT Testing

The ALI/GU EPT is normally given at the time the participant is formally nominated for training. If a retest or several retests are required, there should be at least 4 weeks between test administrations. Test forms should be rotated as frequently as possible to prevent compromise.

7. Procedures for Administering the ALI/GU EPT

- a. Detailed procedures for administering the ALI/GU EPT to participants are included in the Examiner's Instructions for the test. Test administrators should familiarize themselves with this material prior to the day of the test and then follow the procedures outlined exactly. Missions should maintain records on participant testing: dates of test administration, candidates scores.

- b. To insure the validity of test results, the ALI/GU EPT must be administered precisely in accordance with the procedures outlined in the Examiner's Instructions. Tests and materials must be carefully guarded and the candidates closely observed throughout the test period. Test books are to be distributed to the candidates only after all preliminary instructions have been given. If necessary, questions regarding the test administration or general directions to the test may be answered in the candidate's native language. However, once the test has begun, all instructions will be given in English by tape recording. Candidates are not allowed to ask questions once the test has begun. At the conclusion of the test, all tests and answer sheets must be accounted for before the candidates may be dismissed.

8. Grading and Notification to Prospective Participants

After the answer sheets have been carefully scored, they should be filed in a locked cabinet and the results reported to both the candidate and AID individuals concerned. The scores should be explained to the candidates. If as a result of the testing a candidate is found to have language deficiencies requiring further training, he/she should be informed of this individually.

9. Reporting of ALI/GU EPT Scores

- a. Test scores and the form of the test are to be reported as in the following example:

ALI/GU EPT Form A	
Listening	75
Grammar	73
R & V	80

- (1.) Each section score is to be reported separately since each section of the test is measuring a different language skill. (An average or total score is not meaningful and is used only in correlations with TOEFL; see pg. 12A-11).
  - (2.) This information is transmitted as appropriate to OIT. The format is the same when telegraphic communication is necessary.
  - (3.) Comments on other pertinent information should be added if the Mission feels that such information will assist in programming a participant.
- b. Pursuant to instruction in Preparations of participant Biographical Data, Missions report ALI/GU EPT scores in Block #10 of the Biographical Data (pg. 3 of PIO/P AID form 1380-1). If for any reason testing is waived, an explanation of the circumstances under which the waiver is made is required.

10. Qualifying Scores for Call-Forward

- a. In order to ensure uniformly high standards of English proficiency for participants, and at the same time to provide needed program flexibility, the following test-score interpretations are presented. It is to be pointed out that English proficiency tests in general are such that "scores" shown in the chart (see pg. 12A-6) are those which linguistic research and program experience have shown are the minimum AID acceptable levels for the two broad categories of participant training, academic and technical. Test results need to be further interpreted in terms of demands made by the participant's proposed technical training, the facilities available for remedial language study, the pressures of time, and other important program considerations. Adequate English language abilities are always to be considered along with and as a part of the participant's other qualifications.
- b. The following chart shows the minimum AID acceptable ALI/GU EPT Call-Forward scores for each section of the test for academic and technical training:

ALI/GU EPT Minimum Call-Forward Score Requirements

	<u>Listening</u>	<u>Grammar</u>	<u>Reading &amp; Vocabulary</u>
Academic	85	75	80
Technical	75	60	65

TOEFL (when taken) Minimum AID Acceptable Scores for Call-Forward are the following:

Academic	500
Technical	450*

(Note: There is a high correlation between ALI/GU EPT and TOEFL. For assistance in interpretation see pg. 12A-10C TOEFL - ALI/GU EPT SCORE CORRESPONDENCE TABLE.)

\* Also see chapter 23 - Interpreter and Escort Services

- c. In general, participants whose English proficiency is below the minimums described above should be deferred from immediate Call-Forward. These participants should continue intensive English language training in-country, if suitable ELT facilities are available, or be enrolled at ALI/GU in the U.S. until appropriate retesting and evaluation indicates participant is ready to begin the training program. (See chapter 11.E,2,3)

- d. Because of the complex linguistic and programmatic factors involved, it has so far proved extremely difficult to set specific norms for each type of training. However, observation and on-the-job training rank next to academic training in the need for high levels of English competency.

11. Interpretation of ALI/GU EPT Scores

a. For Academic Programs

ALI/GU EPT Scores

<u>Listening</u>	<u>Grammar</u>	<u>Read &amp; Voc</u>	<u>Interpretations</u>
0-29	0-29	0-29	Scores in this range fall within the chance level and indicate extremely limited ability in English.
30-59	30-49	30-49	Candidates in this range have limited ability in English. Intensive English language training is recommended.
60-84	50-74	50-79	Candidates in this range have fair to good ability in English. Call-forward to ALI/GU for 3-4 months pre-academic language training is recommended.
85-100	75-100	80-100	Candidates in this range can be called-forward for academic placement if all test scores are at call-forward levels.

b. For Technical Training Programs

ALI/GU EPT Scores

<u>Listening</u>	<u>Grammar</u>	<u>Read &amp; Voc</u>	<u>Interpretations</u>
0-29	0-29	0-29	Scores in this range fall within the chance level and indicate extremely limited ability in English.
30-74	30-59	30-64	Candidates in this range have limited ability in English. Additional English language training is recommended.
75-100	60-100	65-100	Candidates in this range can be called-forward for short-term technical training if all test scores are at Call-forward levels.

B. LANGUAGE TRAINING ENROLLMENT PROCEDURES IN THE UNITED STATES

The American Language Institute of Georgetown University (ALI/GU) provides English language training in a 25-hour a week intensive program to directly funded participants programmed by an OIT-assigned Programming Agent, and upon request, to those participants being programmed by AID contractors.

1. Directly Funded Participants

- a. Directly funded participants who have been programmed for ELT are instructed by the OIT-assigned Programming Agent to report directly to ALI/GU for testing and placement in the intensive program.
- b. The OIT-assigned Programming Agent will notify ALI/GU of the arrival date of the participant and provide the necessary information for registration. With groups of 10 or more, registration information should be provided at least 10 days in advance. This may be done either by panafax (202-337-1559) or by mailing the American Language Institute/Georgetown University Enrollment Form (see pg. 12A-12).
- c. If there is a question regarding a participant's English language abilities upon arrival in Washington D.C. despite reported qualifying Call-Forward scores, the OIT-assigned Programming Agent arranges for ALI/GU EPT testing and possible placement in ALI/GU.

2. Contract Funded Participants

- a. A.I.D. contractors programming participants for academic or technical training may request enrollment of participants into ALI/GU by contacting either the Director or the Registrar by telephone or mail to determine whether space is currently available in the program. If space is available, the request should be confirmed by mailing the ALI/GU Enrollment Form (see pg. 12A-12).
- b. With groups of 10 or more, requests for placement must be made at least 10 days in advance of anticipated enrollment. Generally, participants may be enrolled on any weekday with the exception of holidays and the week between Christmas and New Year's Day.

3. Housing

If assistance with housing is required, the administrative office of ALI/GU must be notified at least 21 days in advance by letter, panafax or telephone. Participants should be prepared to stay in a hotel up to 15 days after arrival in Washington D.C. while long-term housing is being arranged.

4. ALI/GU Location

The administrative offices of ALI/GU are located at 3605 "O" Street, N.W., Washington D.C., 20007, on the Georgetown campus. The telephone number is (202) 687-4400.

5. ALI/GU Calendar

The ALI/GU intensive ELT program operates continuously throughout the year, independent of university semesters, with the exception of some university and national holidays and the week between Christmas and New Year's Day. Placement tests are administered on any weekday the Institute is open.

6. Length of ELT Program

Participants can be admitted at any time, with the exceptions noted in para. 5 above, and at any level and remain for whatever period of time necessary to meet the requirements of the participant's training program.

7. The Intensive English Language Program

The instructional program is designed specifically for AID participants and includes intensive English training in the basic skills, academic preparation and orientation in a twenty-five hour a week program. Emphasis is on acquiring the competency in English necessary to function successfully in an academic or technical setting. Facilities include a language laboratory and a skills center for individualized instruction and computer learning.

8. Special English Programs

ALI/GU is prepared to offer special content-based English programs to groups of at least 10 at the high-intermediate to advanced level of English proficiency. AID contractors or OIT-assigned Programming Agents should contact the Director of ALI/GU at least two months in advance of anticipated arrival dates to make arrangements. If participants are at the more advanced levels of ELT, arrangements are made by ALI/GU to have participants audit regularly scheduled Georgetown University graduate or undergraduate courses in their field or in a related field.

9. ALI/GU Student Evaluations

Programming Agents or AID contractors may request progress testing of a participant at any time to determine the participant's language progress. ALI/GU Student Evaluations (see pgs. 12A-13, 12A-14) are periodically sent to AID contractors or OIT-assigned Programming Agents to inform Missions as to the participant's level of achievement and anticipated number of weeks needed in ELT before being placed in an academic or training program.

10. Institutional Test of English as a Foreign Language (TOEFL)

An institutional TOEFL is administered at ALI/GU three times each year. Scores are sent to the Programming Agents the day after the administration and forwarded to universities and colleges upon request.

C. TOEFL - ALI/GU EPT SCORE CORRESPONDENCE TABLE

Because TOEFL has become a standard reference for the admission and placement of students in U.S. universities and colleges, a table showing the relationship between ALI/GU EPT and TOEFL will aid score interpretation. The correlation between the two tests is high ( $r = .86+$ ), although the ALI/GU EPT has a slightly lower "ceiling" because it is designed to test both academic and technical participants. The following equivalency table (see pg. 12A-11) shows the probable TOEFL score as predicted from an ALI/GU EPT total score, which is used only in the ALI/GU EPT - TOEFL Correspondence Table. It is determined by adding the three section scores: Listening, Grammar, and Reading & Vocabulary.

## TOEFL - ALI/GU ENGLISH PROFICIENCY TEST (EPT) SCORE CORRESPONDENCE TABLE

ALI/GU EPT Total Score Ranges	Percent of TOEFL scores exceeding:					
	550	525	500	475	450	350
250 +	51%	73%	100%			
225 - 249	4%	26%	65%	94%	100%	
200 - 224		3%	31%	64%	90%	100%
175 - 199			7%	30%	57%	100%
150 - 174					27%	100%
Below 149						100%

**TOEFL - ALI/GU EPT Correlation: .86**

**NOTE:** A total ALI/GU EPT score is determined by adding the three section scores: Listening, Grammar, and Reading & Vocabulary

### INTERPRETATION OF CORRESPONDENCE TABLE

The Correspondence Table is based on 193 AID participants who took both the ALI/GU English Proficiency Test and the TOEFL within a few days. Since TOEFL has now become the most commonly accepted measure of English Proficiency among admissions officers, it is useful to show how ALI/GU EPT scores may be interpreted with reference to TOEFL. It is especially important to determine the minimum ALI/GU EPT ranges which correspond to acceptable levels of TOEFL scores.

ALI/GU EPT SCORE RANGES	PROBABLE TOEFL SCORE RANGES	MEDIAN TOEFL SCORES
250 and above	500 - 575	550
225 - 249	475 - 525	512
200 - 224	450 - 500	484
175 - 199	425 - 475	465
150 - 174	400 - 450	437

The median TOEFL Scores in the right column indicate the mid-point of the TOEFL score range for the ALI/GU EPT score ranges. Fifty percent of the test takers had scores above this point; fifty percent had scores below it.

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**ESPOL - Recommended Student Schedule - Draft**

**January 1994 - July or August 1995**

**If 9-Credit Thesis Option Selected: (19 months if done by end of July,  
20 months if August needed to complete thesis work)**

---

<b>Spring 1994</b>	<b>3 courses</b>	<b>(9 credits)</b>	<b>MG540 Operations Management</b>
			<b>MG550 Statistical Methods</b>
			<b>MG547 Project Management (MBA elective)</b>
			<b>MG542 Quality Planning &amp; Control (MSM elective)</b>
	<b>1/3 Thesis</b>	<b>(1 credit)</b>	
<b>Summer 1994</b>	<b>1 courses</b>	<b>(3 credits)</b>	<b>MG530 Organizational Science</b>
	<b>1 Thesis</b>	<b>(3 credits)</b>	
<b>Fall 1994</b>	<b>4 courses</b>	<b>(12 credits)</b>	<b>MG510 Management Accounting</b>
			<b>MG570 Computers in Business</b>
			<b>MG580 Economic Theory</b>
			<b>MG531 Managing Organizational Change</b>
			<b>OR MG590 Management and Society (MBA elective)</b>
			<b>MG527 Risk Management</b>
			<b>OR MG548 Productivity Management (MSM elective)</b>
<b>Spring 1995</b>	<b>3 courses</b>	<b>(9 credits)</b>	<b>MG520 Financial Management</b>
			<b>MG560 Marketing Management</b>
			<b>MG591 Business Policy</b>
	<b>2/3 Thesis</b>	<b>(2 credits)</b>	
<b>Summer 1995</b>	<b>1 course</b>	<b>(3 credits)</b>	<b>MG595 Business Law &amp; Ethics</b>
	<b>1 Thesis</b>	<b>(3 credits)</b>	
<b>Total:</b>	<b>15 courses</b>	<b>(45 credits)</b>	

6.

**If 6-Credit Thesis Option Selected: (19 months if done by end of July,  
20 months if August needed to complete thesis work)**

---

<b>Spring 1994</b>	<b>3 courses</b>	<b>(9 credits)</b>	MG550 Statistical Methods MG547 Project Management (MBA elective) MG590 Management & Society OR MG598 Breadth elective (MBA elective) MG542 Quality Planning & Control (MSM elective) MG598 Independent Study MSM elective OR Other MSM elective
	<b>1/3 Thesis</b>	<b>(1 credit)</b>	
<b>Summer 1994</b>	<b>1 courses</b>	<b>(3 credits)</b>	MG530 Organizational Science
	<b>1 Thesis</b>	<b>(3 credits)</b>	
<b>Fall 1994</b>	<b>4 courses</b>	<b>(12 credits)</b>	MG510 Management Accounting MG570 Computers in Business MG580 Economic Theory MG527 Risk Management OR MG548 Productivity Management (MBA or MSM elective)
<b>Spring 1995</b>	<b>3 courses</b>	<b>(9 credits)</b>	MG520 Financial Management MG560 Marketing Management MG591 Business Policy
	<b>2/3 Thesis</b>	<b>(2 credits)</b>	
<b>Summer 1995</b>	<b>2 courses</b>	<b>(6 credits)</b>	MG595 Business Law & Ethics MG540 Operations Management
<b>Total:</b>	<b>15 courses</b>	<b>(45 credits)</b>	

**Note:** Either of the above is expected to be an extremely challenging program of study.

**January 1994 - December 1995**

**If 9-Credit Thesis Option Selected: (24 months)**

---

<b>Spring 1994</b>	3 courses (9 credits)	MG540 Operations Management MG550 Statistical Methods MG547 Project Management (MBA elective) MG542 Quality Planning & Control (MSM elective)
	1/3 Thesis (1 credit)	
<b>Summer 1994</b>	1 course (3 credits) 1/3 Thesis (1 credit)	MG530 Organizational Science
<b>Fall 1994</b>	3 courses (9 credits)	MG510 Management Accounting MG570 Computers in Business MG580 Economic Theory
<b>Spring 1995</b>	3 courses (9 credits)	MG520 Financial Management MG560 Marketing Management MG591 Business Policy
	1/3 Thesis (1 credit)	
<b>Summer 1995</b>	1 course (3 credits) 2/3 Thesis (2 credits)	MG595 Business Law & Ethics
<b>Fall 1995</b>	1 course (3 credits)	MG590 Management & Society OR MG593 International Management (MBA elective) MG592 Entrepreneurship & New Venture Management
	1 1/3 Thesis (4 credits)	OR Other MSM Elective
<b>Total:</b>	<b>15 courses (45 credits)</b>	

**If 6-Credit Thesis Option Selected: (24 months)**

---

<b>Spring 1994</b>	3 courses	(9 credits)	MG540 Operations Management MG550 Statistical Methods MG547 Project Management (MBA elective) MG542 Quality Planning & Control (MSM elective)
	1/3 Thesis	(1 credit)	
<b>Summer 1994</b>	1 courses	(3 credits)	MG530 Organizational Science
	1/3 Thesis	(1 credits)	
<b>Fall 1994</b>	3 courses	(9 credits)	MG510 Management Accounting MG570 Computers in Business MG580 Economic Theory
	1/3 Thesis	(1 credit)	
<b>Spring 1995</b>	3 courses	(9 credits)	MG520 Financial Management MG560 Marketing Management MG591 Business Policy
	2/3 Thesis	(2 credits)	
<b>Summer 1995</b>	1 course	(3 credits)	MG595 Business Law & Ethics
<b>Fall 1995</b>	2 courses	(6 credits)	MG590 Management & Society OR MG593 International Management (MBA elective) MG592 Entrepreneurship & New Venture Management
			OR Other MSM Elective MG??? Free elective
	1/3 Thesis	(1 credit)	
<b>Total:</b>	15 courses	(45 credits)	

Undergraduate students

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ons indicates the semes-  
oval is granted and re-  
tent respond and, if  
for graduate study, sub-  
ndable deposit. Of this  
edited toward tuition,  
e Student Organization  
Orientation Fee.

**STUDENT INSURANCE**

ary fee is \$76 per year.  
nts must be covered by  
t insurance equivalent  
er the Student Health  
ance Plan.

students are required to  
orientation fee. (This is  
students as part of the

**STUDENT ORGANIZATION**

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to support the activi-  
e Student Organization.  
entering students as  
posit).

ses taken by graduate  
n a fee per credit hour.  
of Graduate Admissions  
Office for current rates.  
individuals auditing a  
t of the normal fee.

**REGISTRATION**

nts are required to regis-  
e appointed date as  
ar. A late fee of \$25 is  
gistration after the ap-  
before the first day of  
\$50 late fee is charged  
the first day of gradu-  
ation is not permitted  
or classes.

**THESIS BINDING**

A thesis/dissertation binding fee must be paid at the Accounting Office by noon on Friday, two weeks before the end of the semester in which the degree is to be granted. The fee is \$7.50 per copy. A minimum of four bound copies is required: two for the library, one for the major professor, and one for the department.

**TRANSCRIPTS**

Worcester Polytechnic Institute will issue one transcript of record to a student without charge. Additional transcripts are issued upon receipt of a fee of \$2.00 per copy.

**GRADING SYSTEM**

In order to assess progress throughout the graduate program, grades are assigned to the student's performance in course, project and thesis work. Academic achievement is based on the following grading system:

- A Excellent
- B Good
- C Pass
- D Unacceptable for graduate credit
- F Fail
- Au Audit
- NC No credit (only for thesis work); will not be recorded on transcript
- P Pass; unacceptable for graduate credit
- I Incomplete; transition grade only; becomes grade of F if not changed by instructor within 12 months
- Def Deferred (grade to be assigned later)
- W Withdrawal
- SP Satisfactory progress; continuing registration in thesis/dissertation/directed research
- CR Credit for work at another institution
- UP Unsatisfactory progress; this grade remains on the file transcript

**QUALITY POINT AVERAGE**

Grades are assigned the following quality points: A = 4.0, B = 3.0, C = 2.0, D = 1.0 and F = 0.0. The Quality Point Average (QPA) is calculated as the sum of the products of the quality points and credit hours for each registered activity (including courses, independent studies, directed research, thesis research and dissertation research) in the average, divided by the total number of credit hours for all registered activities in the average. If a student takes the same course more than once, the course enters the QPA only once, the most recent grade received for the course being used in the average.

A student's overall QPA is calculated on the basis of all registered activities taken while enrolled as a graduate student at WPI—courses taken more than once are entered only once in the QPA. WPI graduate courses taken before a student had status as a degree-seeking graduate student are included in the overall QPA. A student's program QPA is calculated on the basis of those WPI courses listed by the student on the student's Application for Graduation form. The transcript will report the overall QPA.

Courses transferred from elsewhere for graduate credit (for which a grade of CR is recorded on the WPI transcript), and courses taken to satisfy undergraduate degree requirements or to remove deficiencies in undergraduate preparation, are not included in either QPA. Registered activities in which the student receives grades of AU, NC, P, I, W, X, SP or UP are not included in either QPA.

Only registered activities in which a grade of A, B, C or CR was obtained may be used to satisfy courses or credit requirements for a graduate degree.

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Department of Management  
100 Institute Road  
Worcester, MA 01609-2280  
(508) 831-5218  
FAX: (508) 831-5720

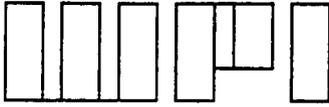
**TO:** Mr. Carlos Becerra, ESPOL  
**FROM:** Lisa Jernberg, WPI *LJ*  
**RE:** TOEFL Registration Forms/Booklets  
**DATE:** August 17, 1993

In the acceptance letters for Victor Gonzalez and Edgar Izquiereo I noted that A.I.D. requires a TOEFL, or other acceptable measure of english skill, prior to allowing students to travel to a foreign country for educational programs.

I had mentioned that I would forward the TOEFL Registration Forms/Booklets to ESPOL immediately upon receipt. Could you please see that Victor and Edgar each receive a TOEFL Booklet. Also, please note the September 6 deadline for registration. It is important that they each aim for the October TOEFL if WPI is to receive the results in time to process their paperwork for travel to the U.S. for January.

Additional copies of the TOEFL Registration Form/Booklet are also enclosed for use by individuals looking to attend WPI in the future.

Please contact me if you have any questions. Thank you.



**MEMORANDUM**

---

DATE: July 22, 1993

TO: Carlos Becerra, ESPOL

FROM: Lisa Jernberg, Director of *LJ*  
Graduate Management Programs

DEPARTMENT

OF

MANAGEMENT

SUBJECT: Status of Graduate Applications

---

Thank you for your letter. I wanted to promptly respond to let you know that both Victor Gonzalez and Edgar Iquierdo have been accepted to the programs to which they each applied (M.S.M. and M.B.A. respectively). As per their applications, we are working to have them arrive for the January 1994 semester, unless otherwise indicated. I have not yet sent out formal notification, however, because I've been working with Jim Rollings to compile a complete outline of what is required to get the students to WPI and to appropriately implement the ESPOL/WPI agreement. I will be contacting A.I.D. this week to get specific answers to some of the questions identified.

In the meantime, however, I will plan to send a letter of acceptance to each of these individuals, but I will make note that a second letter will be forthcoming detailing the specifics of their arrival.

If you have any questions, please contact me as soon as convenient. I will pass a copy of your letter on to Jim Rollings as it answers several of the questions identified.

Thank you for your patience.

cc: Jim Rollings



WORCESTER  
POLYTECHNIC  
INSTITUTE

Department of Management  
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Worcester, MA 01609-2280  
(508) 831-5218  
FAX: (508) 831-5720

May 21, 1993

Mr. Victor Hugo Gonzalez  
c/o ESPOL

Dear Mr. Gonzalez:

Thank you for your interest in WPI's Graduate Management Programs focusing on the management of technology.

We are excited about the quality of our M.B.A., Master of Science in Management, and Master of Science in Manufacturing Management programs. Since many of our graduate students work full-time, our classroom experiences balance academic literature with the insights of practicing managers. This mix encourages considerable information sharing and networking, which are important components of WPI's Graduate Management Programs.

James Rollings (one of WPI's primary ESPOL coordinators) has asked that I fax you the materials needed to apply to WPI's program. WPI requires an official application, official transcripts and three letters of recommendation of which at least one should be from a supervisor. Because of your prior Master's degree, because of the developing relationship between WPI and ESPOL, and because of your extensive teaching, research and work experience, the department has agreed to waive the GMAT, TOEFL and \$25 application fee. You should note, however, that many of our classes are highly conversational and your ability to participate will be important if you are to obtain full value from the program.

If you have any questions, please call me (508) 831-5561, or fax me (508) 831-5720. Once all required application materials are received, your application will be processed immediately.

Sincerely,

Lisa M. Jernberg  
Director, Graduate Management Programs

# **APPENDIX F**

## Trip Report-Ecuador October 17-December 6, 1993

The purpose of this two month trip was to advise three student projects done in conjunction with ESPOL. These projects were:

An evaluation

In addition, I provided informal consultation to a fourth project that was formally advised by a faculty member on the WPI campus, with on-site advising from a member of the ESPOL faculty.

In preparation for the trip to Ecuador with the sixteen students, I met weekly with each of the three first mentioned teams to guide them in their preparation for their projects, which included the development of a literature review in the area of study proposed by the ESPOL faculty and a tentative methodology, which, together, constituted a proposal to the ESPOL faculty for the work. I also prepared the students in how to do formal presentations, which they did at least twice during the preparation phase, including once to ESPOL faculty who were visiting at WPI.

In Ecuador, I met nearly daily with some members of the groups and daily with other members of the groups to talk about the progress of the work. Meetings with the students included meetings with the students in the Major Qualifying Project group. Regular meetings with the students and ESPOL faculty also were built into the process for the Interactive Qualifying Project groups, so that I, the students, and the ESPOL faculty could monitor the accomplishments of the group and shift focus and goals whenever it was necessary.

The students were required regularly to turn in multiple drafts of the chapters of their final report, which I read and corrected. Except for the MQP group, all groups were able, therefore, to turn in completed reports to the ESPOL faculty before leaving Ecuador. I read several drafts for the MQP group as well and commented on flow, grammar, and consistency. These readings and my nearly daily conversations with members of the group resulted in my requesting them on several occasions to clarify certain aspects of their project with their WPI advisor.

In providing guidance and in addition to the meetings, I went on several field excursions with the students and ESPOL faculty: to Puerto Honda and surrounding mangrove areas to put in context the sustainable development project, to the dump that will soon be closed to examine the conditions under which the people working in the dump live, to the Salado Estero to see the condition of the estuary, and to the towns, river areas, and cyanide treatment plant near the gold mine as well as the gold mine that was the focus of the technical project.

During the seven weeks, the students presented their work to me and to their peers at formal presentations that I built into the flow of the work. At the end of the seven weeks, after several additional practice sessions, the students presented their work at a final formal presentation at ESPOL to which were invited a variety of people who had assisted the students or whom the students had interviewed in the course of their work.

In addition to the guidance of the projects, I was charged with determining if the gold mining areas were areas that were safe enough for our female students. This issue became moot because the students were always accompanied by an ESPOL person whenever they went into the field.

The environmental thrust of the projects meant that there were several agencies that, in theory, at least might be interested in hosting further projects. I visited it, the PRMC (Programma de Manejo de Recursos Costeros), speaking with Alejandro Bodero L. who briefed me regarding some of the activities of the organization. I was interested also in the relationship of this agency to the activities involved in ecotourism, since we have done projects in Puerto Rico and Costa Rica in that area of investigation and are developing further ones in that topic. I thought there might be some opportunities for cooperative work.

I also visited the Fundacion Pedro Vicente Maldonado, meeting with the Director Emilio Ochoa Moreno, to discuss similar topics. Also, since this organization resides on the Las Penas campus, I wanted to assess the possibility of their providing projects for our students in the future. Probably, this organization can be used as a resource to our students as they did to one of our groups.

Another organization I visited was Fundacion Charles Darwin, where I met with Mario Hurtado. This meeting was particularly pointed to discussing the issues of ecotourism, including the training and preparation of the guides, the limits to being able to protect the terrain and animals, and the successes and failures of the concept and reality of ecotourism. This visit confirmed much of I discussed at the PMRC and with Fabricio Valverde A., a graduate student at ESPOL, with whom I met to discuss the Galapagos. Mr. Valverde has been working in the Galapagos for the past five years and has been completing his thesis there.

The topic of ecotourism is an interesting one, one that might be developed into projects if they were hosted by one of these agencies.

The connection to agencies is an important one because the value of the projects could be enhanced greatly if they were sponsored by organizations rather than by ESPOL faculty. The reason is that unless the projects sponsored by faculty are directly related to ongoing research, the results will be not be valued as

highly as if they were part of the mission of an organization. This problem existed with all four projects completed during this fall term with ESPOL and caused the students frustration that, at times, seemed excessive. Only in one case: namely that of the Estero Salado project, was the project directly related to work the faculty was doing, but even in that case, much of what the students had intended to do was not possible because the faculty had assumed certain data would be available to the students that, in fact, did not exist.

# **APPENDIX G**

**ECUADOR PROJECT CENTER  
WORCESTER POLYTECHNIC INSTITUTE**

**PROCEDURES MANUAL FOR FACULTY AND STUDENTS**

**1993 - 1994**

**James E. Rollings  
Director  
Ecuador Project Center  
(508) 831-5664**

**Projects Office  
100 Institute Road  
Worcester Polytechnic Institute  
Worcester, Massachusetts 01609**

# APPENDIX H



## MEMORANDUM

---

TO: ESPOL/WPI group

FR: James E. Rollings

Re: Two (plus) years into the linkage.

This Holiday season marks two and a quarter years into the University Development Linkages Program between WPI and ESPOL (of Guayaquil, Ecuador). We can all be proud of the accomplishments that have occurred for both institutions over this time and should all anticipate continuous growth in mutual areas of institutional and personal professional interest for many years to come. I'll take this opportunity to thank each and everyone of you for your contributions and ask you for your continuous support of this unique experiment.

I've attached a short summary of our inter-institutional linkage (prepared for Interactions 14) which overviews the programs objectives and basic accomplishments and in addition provides some insight to my personal philosophy and of the eventual out comes of such ventures. For your information, I've also attached a copy of the ESPOL strategic plan that (for those of you who read Spanish) collects their institutions thoughts on their near future. You will recognize the clear direct impact that WPI has had on our partner institution. ESPOL has studied WPI and chosen to adopt many of our functions that are appropriate to their operation.

The original foci on this project have been directed along the fronts of environmental and entrepreneurship. Now it might be better stated that this project is under going a metamorphosis refocused toward metaprenurship (metaprise) and medio ambient. My use (miss use) of metaprenurship (metaprise) is intended to underscore the fact that the organizations of the 21st century will involve a transformed organization encompassing all of human nature into it's operational restructure. My use of the Spanish equivalent of environment (literally translated as middle atmosphere) emphasize our precarious human existence balanced between heaven and earth. The American (English) words imply concrete products: a sustainable earth and an expanding commerce. I inferred the other words to conjure up a holistic enterprise and human coexistence with nature. I believe the Department of Management has taken a lead in developing the metaprise linkage and jointly, the departments of Civil and Chemical Engineering have assumed the lead in environmental research and education.

Both WPI and ESPOL are currently wrestling with visions of the next century. WPI is re-examining the Plan through such documents as the "White Paper on Academic Issues" and the "COG Acts on Draft White Paper". ESPOL is employing both strategic and operational planning methodologies to set new targets for curricular advancement. In many respects, both

institutions are moving along similar pathways. Common to both institutions are pragmatic introduction or improvements in environmental science, engineering and total quality concepts introduction to manufacturing and management. ESPOL has initiated a new decentralized administrative system that gives greater control and accountability to individual departments (faculties), institutes and cultures. Each unit must operate at a profit. With decreased government financial support, ESPOL is now actively seeking private sector, international, and national organizational and NGO (non-governmental organization) partners. ESPOL is actively seeking proactive networks as they believe the next phase in development will require coalitions of groups working on common areas in development.

My observations of this "1990's dynamic" indicates significant psychological changes occurring in higher education and in international cooperations. I believe that with the passage of NAFTA, proactive institutions in the Western Hemisphere are no longer constrained by national boundaries but are rather limited only by common missions. Institutional culture appears to be a stronger guiding influence than political boundaries.

Given this background, let me summarize where I see the current status of this UDLP and what are the next phases of our response. WPI has now completed six IQPs on site in Ecuador and one Civil Engineering MQP will be completed this spring. Art Gerstenfeld has completed two intensive one week work shops on site supported by the Management Department of ESPOL. Here at WPI, we've held three one week-long work shops on total quality management, administrative topics, and environmental research. ESPOL is scheduled to execute an environmental congress in December '94. The Ecuador II IQP teams have listed several projects that we will execute during E and B terms in 1994. I plan to extend these project opportunities to include graduate student studies on site in Ecuador this year and hope to continue MQP opportunities in Civil and Chemical Engineering and possibly Management.

**We will need to run the PQP during D and A terms again in order to prepare our students for their overseas experiences. I will call on you again for your assistance in this effort. I have had some feed back from the students who have gone through this program and will try to incorporate their suggestions into the next PQP class.**

**I'm also asking you for your suggestions on improving the project experiences. If you have any thoughts on this matter, please call me or jot down your ideas and send them to each of us on this distribution list for discussion.**

cc: WPI Distribution List  
    ESPOL Distribution List

## Guayaquil Ecuador Project Center

by James E. Rollings

The newest WPI Latin American project center, in Guayaquil, Ecuador, was made possible under a cooperative agreement administered by the U.S. Agency for International Development (USAID) through a novel program which unites two academic institutions sharing a common mission. In this case, WPI joined with Escuela Superior Politecnica del Litoral (ESPOL) of Guayaquil, Ecuador, in a program focused on interdisciplinary studies in environmental science and engineering, and in management.

USAID's University Development Linkages Program (UDLP) was conceived of in 1990 to promote and support collaboration between U.S. universities with developing country institutions of higher education to strengthen these institutions to more effectively meet the development needs of their societies and to further the internationalization objectives of U.S. colleges and universities. The UDLP provides a framework for universities to implement a variety of long-term, sustainable relationships. WPI and ESPOL designed their program to center on two issues: environmental science and engineering, and entrepreneurship (or new business developments). The hope of this partnership is to initiate environmentally safe new enterprises, and to use these proactive initiatives as a mechanism to educate the next generation of North and South American leaders in technology and its responsible management.

The linkage between WPI and ESPOL is unique amongst WPI's 18 off-campus sites, not only in its focus along the selected international strategic topics of environment and entrepreneurship, but also by directly involving faculty and graduate student participation through research in this venture. In addition to the "normal" undergraduate projects, the broad, multidisciplinary and cross cultural nature of the WPI/ESPOL linkage organically brings together a coalition of technical professionals dedicated to developing curricula, projects and community outreach programs that will provide services in international settings and strengthen institutions of higher education in the U.S. and Latin America. WPI and ESPOL embrace these broad agency-wide objectives and have incorporated them into their strategic plans. WPI has targeted 1995 as the moment in which fully 50% of its students will have been exposed to international experiences. ESPOL has set 1997 as the time in which programs in environmental engineering, biotechnology and total quality management will be in place and contributing to the national Ecuadorian development. The USAID/UDLP project is central to both institutional goals.

To date, three workshops involving two dozen ESPOL faculty and nearly twice this number of WPI faculty have been conducted at WPI on total quality management, academic administration and environmental research topics. Twenty one undergraduates students have completed IQP and MQP projects on-site in Ecuador and two ESPOL faculty have been admitted to the graduate school at WPI. These efforts have resulted in six research proposals or preproposals seeking nearly a half million dollars in additional funding. One of the Ecuadorian off campus IQPs has been selected as finalist in the 1993 President's IQP Awards competition. Clearly, the rapid growth in this program signifies progress in sustainable

linkage development.

The long range vision of this program seeks to build institutional capacity to execute proactive social change and lead to sustainable interinstitutional cooperation. In the first two years of the WPI/ESPOL linkage, networks have been formed with several Ecuadorian non-governmental organizations including Fundacion Natura (Nature Foundation, an affiliate of the World Wildlife Foundation) as well as local and national (Ecuadorian) governmental agencies. Completed undergraduate projects have interfaced with groups within the national and municipal governments, several conservation agencies, and two of the chambers of commerce or industry in Guayaquil. The various perspectives provided by these groups have greatly aided WPI's student project teams in learning how economic development and ecological protection occur in a developing nation such as Ecuador.

For example, three WPI students (John Coyle EE '94, Dan DiBiasi CE '95 and Jim Watson CM '94) in Ecuador I (Bootstrap team) completed a project entitled "Environmental Management in Ecuador: A Case Study of Ecuadorian Oil Industry" that in part focused on a section of the national petroleum pipeline between the cities of Esmeraldas and Santo Domingo. The use of this study was valuable to the student team as it clearly illustrated how construction projects impact a variety of ecological and socio-economic regions and provide an excellent overview of how every part of Ecuador is affected by industrial development. The students saw that this pipeline construction project presented an example of other similar development effects in that construction of the associated highway necessitated clearing of vegetation, disturbing wildlife and catalyzed soil erosion. Due to the presence of this oil pipeline, local human populations were impacted as well, causing demographic shifts in the population, accelerated deforestation along the highway, and modified social behavior in the use of fuel resources. A second example from the Ecuador II team permitted four students (Todd DiNoia CM '95, Spirit Joseph BB '95, Eduardo Mendez CE '95, and Vail Mossier CM '95) to work directly with the local Nature Foundation and a small (8000 inhabitant) community (Puerto Hondo) 25 Km west of Guayaquil on Sustainable Resource Management directed toward development of ecotourism in a threatened ecosystem consisting of both dry tropical forests and mangrove swamps. Both these projects served as excellent educational tools, and have been used by both WPI and ESPOL faculty as groundwork for further research proposals involving both institution's faculty and additional outreach partners. Both WPI and ESPOL have concluded that the student projects serve a valuable link in institutional growth.

As a second primary objective in the WPI/ESPOL project center program, faculty and institutional development. are targeted through short term workshops, graduate degree programs completion and institutional infrastructural changes. At the September 1993 WPI/ESPOL workshop on environmental topics, five preproposals were framed on topics ranging from environmental curricula development to construction of research programs in geographical information systems and tropical plant biology/medicinal chemistry. All the research topics were a direct result of the first two years of institutional dialog supported by this UDLP. These are clear indicators of interinstitutional project sustainability and institution

building process.

The ESPOL administration has seen the benefits of the linkage with WPI. ESPOL has drafted its first institute wide strategic plan (Plan Estrategico 1994-1997) founded on total quality management (TQM) principals (TQM was the topic of the first two WPI/ESPOL workshops). From a management perspective, TQM seeks to balance four major driving forces in a matrix of motivators:

1. National and international competitiveness
2. Institutional renewal
3. Customer requirements
4. Operational improvements.

The first two motivators suggest that the linkage institutions (WPI and ESPOL) attribute their motivations to both the external environment and the environment of their own institutions. The second two forces reflect changes required to "modernize" academic structure and to assume that both broad and narrow interests are accommodated. WPI's administration has also seen the need to enhance the effectiveness of higher education's role as a supplier of knowledge and learning resources to a world that is increasingly becoming international and interdependent.

The week before Thanksgiving 1993, I was at a meeting of the UDLP award winners being supported by USAID. The last day of the conference I was asked to speak to the attendees, the only U.S. academic thus invited. I think that here is a good place to share some of my collected thoughts on the WPI and ESPOL linkage to representatives of 150+ other institutions of higher education in the U.S. and in developing countries in the Americas, Asia, and in Africa:

The foundations of education are the three R's: reading, writing and 'rithmetic. The UDLP project supported by USAID is based on these rules and further asks us to extend our institutional missions to incorporate social responsibilities into our operations. This is a shift in academic paradigm that my own institution has now nearly twenty years experience. We have explicitly requested all graduating scientists, engineers and managers to demonstrate this social commitment formally (as a degree requirement) into their curricula since 1972. Having served as a U.S. Peace Corps Volunteer for three years (1972-75) in East Africa, having been exposed to leadership skills for three years (1989-92) through a Fellows program sponsored by the W.K. Kellogg Foundation and having coordinated the linkage project between WPI and ESPOL for three years (1991-93), I now find the need to place two additional R's over the three foundational R's.

These two over arching R's are relationships and results--a need to balance task orientational education with education that fosters building interrelationships between peoples involved in higher educational pursuits. I have found that in order to execute projects resulting in meaningful change, people need to be engaged. Particularly in Latin America societies, direct people-to-people contact is required for participation. Expected results of the projects seldom is the single causative agent. Maybe people (or

institutions) need to become involved in a results oriented project. Possibly, task orientation needs to be balanced with relationship building. I've tried to structure the WPI/ESPOL project center with significant opportunities for individuals to get to know each other.

One, potentially, needs to question the entire paradigm of higher education, as least as has been framed by the UDLP program. Possibly we're no longer working with the 3-R's model. Upon looking over the posters as presented by the other groups involved in the AID sponsored UDLP interinstitutional linkages, I conclude that we might need to extend our model to include the other letter of the alphabet. I did this exercise and found that there are commonly sets of 3-C's and 3-P's that transferred all other partner groups. Might I offer the following three "C's"--color, community, and commitment, and three "P's"--people, paradigms and possibilities. This offering of 3-C's and 3-P's are incomplete unless I list a few D's--the diversity of the disciplines that are dedicated to development. Collectively, these C's, P's and D's are the partnerships of institutions that dare to create dreams.

Moreover, in this hybridized new paradigm, we must look for C-P combinations including compassion for the people we wish to influence, our compadres, our compatriots and those with whom we have broken bread (or in Spanish) con pan.

While I hesitate to put words on paper that might seem to overestimate the significance of this program, I do wish to state feelings that I have collected during my first three years as primary architect of this inter-institutional dialog. First, I've seen that it is not possible to present the WPI/ESPOL project center's operation in a clear theme restricted only to undergraduate or interdisciplinary extra-curricular project work. The guidelines of the UDLP do not limit curricular developments to any student group or disciplinary focus. From the outset of this project center, graduate, executive, and continuing education were all deeply involved as well as faculty development and institutional mission re-direction. It appears to me that we're witnessing a drift in paradigm within the academy; and WPI's now twenty-year-old Plan finds itself at the center of the "change in vision" occurring during this last decade of the twentieth century.

TO: WPI/ESPOL distribution list  
FR: James Rollings  
RE: Summary of growth with ESPOL

La Escuela Superior Politecnica del Litoral (ESPOL) by official action of its overseeing body (a 60 member group equivalent to a combination of our Board of Trustees and our faculty governance system) on October 28, 1993 passed a resolution granting all past and future WPI alumni "Engineering Status" within the ESPOL system. This means that all WPI engineering graduates will receive a "P.E.-like" status in Ecuador with minimal accounting requirements. As I understand, WPI graduates will be required to present a WPI transcript and present/defend their MQP. Letters will be sent to the nine past WPI alumni in the next few weeks.

Additionally, ESPOL has finalized its "Strategic Plan 1994-97" and a copy of this document (in Spanish) is enclosed for your review. As you will note, ESPOL has been significantly influenced by WPI both in framing its strategic plan (using our plan as a model) and in setting institutional directions consistent with the WPI/ESPOL University Development Linkages Program outlined in 1991-92. Noteworthy inclusions in the ESPOL plan are technologies of biotechnology and environmental sciences as well as entrepreneurship and total quality management. This plan provides us with a real measure of impact due to our UDLP. We can be proud of our accomplishments in institution building together with our Latin American partner.

ESPOL has selected other partner institutions of higher education that they believe will assist ESPOL and WPI in our mutual growth and outreach programs. Included in this list are institutions independently targeted by WPI as potential academic partners; Instituto Tecnológico de Estudios Superiores de Monterrey (Monterrey, Mexico), Universidad Técnica Federico Santa María (Valparaíso, Chile), Universidade Estadual de Campinas (São Paulo, Brazil), Universidad Católica de Chile (Santiago, Chile), and Universidad Autónoma Nacional de México (México-D.F., México). As Director of Latin American Programs, I plan on contacting these institutions through their rectors in the near future inviting them to participate in our programs.

I met with several other institutions (mainly NGOs) that would like to interact with WPI and ESPOL through our projects and graduate/faculty research activities. Some of these groups are:

"FUNDAGRO" (Fundación para el Desarrollo Agropecuario), Director Julio Chang interested in expanded programs in sustainable development and working with ESPOL probably through Fundación Natura (Guayaquil). Their library resources are excellent and are willing to let WPI student groups use them. They have CD ROM and video tapes on most agricultural areas. FUNDAGRO has had some Kellogg Foundation funding.

"OIKOS" (not sure what the letters shorten from), Director Marco Encalado interested in environmental entrepreneurship. Was suggested by AID Mission officer Fausto Mandalado as a good

contact for us. Marco E. sounded keen on joint work in Guayaquil with ESPOL and us on topics of environmentally sound new business developments. Program that they manage seeks to develop 20 new businesses each year for the next 10 years. This program seems to be following an EMPRETECH-like operation that has been established in Chile (through Fundacion Chile). This group will be important to us in promoting the entrepreneurship program in ESPOL next year.

"Fundacion IDEA" is a group that I've interacted with before and generate good background documents on many good IDEAs worthy of WPI student and faculty reading.

The bootstrap environmental team (Jim Watson, Dan DiBiase and John Coyle) project "Environmental Management in Ecuador: Case-Study: Ecuadorian Oil Industry" was selected as one of five finalists in the President's IQP Award competition. Congratulations to them and to all of you that helped to make this a productive beginning for this new venture.

# **APPENDIX I**



WORCESTER  

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1993-95

*Graduate Catalog*

# APPENDIX J

**ESCUELA SUPERIOR POLITECNICA  
DEL LITORAL**

***PLAN OPERATIVO 1994***  
**(PLAN ESTRATEGICO 1994-1997)**

**Diciembre, 1993**

Documento de análisis interno  
Diciembre 8/93

## PLAN OPERATIVO 1994

Después de un amplio proceso de consultas, y una vez que hubo consenso, la ESPOL aprobó en octubre de 1993 el Plan Estratégico 1994-1997 que contiene 30 objetivos específicos.

El Plan Estratégico constituye un instrumento valioso por ser la guía institucional en el próximo cuatrenio, pero para que pueda medirse su valía hay que transformarlo en planes operativos anuales.

La formulación del Plan Operativo 1994 requerirá de un gran poder de creatividad y objetividad para adecuar el Plan Estratégico a las posibilidades reales de trabajo de la ESPOL, a la necesidad de innovarse y a los recursos financieros que obtenga y genere la Escuela.

En este contexto, el Plan Operativo 1994 debe ser un instrumento de **PLANIFICACION, COORDINACION y EJECUCION** que ayude a concretar en acciones, productos y resultados los objetivos del Plan Estratégico 1994-1997. **La ejecución del Plan Operativo permitirá valorar el desempeño de todos los Directivos de la ESPOL.**

Como todo proceso planificador, el Plan Operativo debe ser el resultado de un consenso institucional liderado por los directivos de la ESPOL. Ese consenso requiere de la participación activa y del compromiso permanente de todos los estamentos, en especial de la planta docente que como cuerpo tiene la responsabilidad de dirigir la institución.

Para que el Plan Operativo tenga éxito, las acciones deben ser coherentes, y los organismos de dirección institucional, las máximas autoridades, así como los organismos y directivos de las unidades académicas y administrativas encargadas de ejecutarlas deben trabajar con una misma orientación y con cronogramas coordinados y preestablecidos.

El Plan Operativo debe contener las acciones que la ESPOL considere (i) que son prioritarias, (ii) que son pre-requisito para el cumplimiento de uno o más objetivos, (iii) que son ejecutables durante 1994, (iv) que le dan continuidad a trabajos en marcha, (v) que son financieramente alcanzables y que contribuyen al mejoramiento de la situación presupuestaria.

Para medir el nivel de ejecución del plan, para cada actividad se identificará **Indicadores de Avance** que le permitan a los directivos y en especial al Rector, tomar las medidas preventivas y correctivas.

Para cada objetivo hay una o más actividades . Los objetivos son 30 y constan en recuadro. Hay 48 actividades previstas.

En 1994 el énfasis deberá ponerse en:

<p style="text-align: center;"><b>OBJETIVO I</b></p> <p style="text-align: center;"><b>FORTALECER EL NIVEL ACADEMICO DEL DOCENTE</b></p>
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1.- **Formular y ejecutar el programa de formación, actualización y perfeccionamiento docente**

Se considerarán los siguientes parámetros: (i) aumentar el número de profesores de ingeniería con maestría. (ii) articular la formación y actualización docente con los programas de Diplomado y Maestrías, con las nuevas carreras de pregrado que ofertará la ESPOL y con los proyectos de investigación, (iii) los limitados recursos institucionales y la dificultad de obtenerlos de organismos externos a la ESPOL.

Cada unidad académica formulará su plan, lo remitirá en enero/94 al Vicerrectorado General quien elaborará el plan institucional que pondrá en consideración y aprobación del Consejo Politécnico, en función de prioridades y disponibilidades económicas.

2.- **Formular la estrategia para iniciar el plan de pasantías en la Industria 1994-1998**

Cada unidad académica presentará en enero/94 su estrategia, las que servirán para que el Vicerrector General elabore el plan institucional en marzo/94.

**3.- Formular y ejecutar el plan de publicación de textos y materiales de estudio generados por los docentes de la ESPOL.**

Cada unidad académica presentará en enero/94 su plan respectivo, los que servirán para que el Vicerrector General y el Vicerrector de Asuntos Estudiantiles elaboren el plan institucional en marzo/94.

**4.- Evaluar el rendimiento y desempeño del personal docente**

Se aplicará la reglamentación respectiva.

**OBJETIVO II**

**MEJORAR LA CALIDAD DE LOS PROGRAMAS ACADÉMICOS DE PRE-GRADO**

**5.- Realizar una Auditoría Académica**

La auditoría debe revelar, entre otros aspectos, (i) el nivel de **eficiencia** institucional, (ii) la pertinencia de las carreras y programas que la **ESPOL** oferta, (iii) la correspondencia entre el trabajo y la carga horaria del docente.

**6.- Introducir reformas al sistema de estudios**

Se introducirán reformas para pasar del sistema flexible a un sistema semi-rígido. Los cambios están relacionados con: (i) la frecuencia del dictado de las materias fundamentales y complementarias, (ii) la oferta de cursos de invierno autofinanciados. El Vicerrector General presentará la propuesta en el primer trimestre de 1994. Las reformas impactarán positivamente en la racionalización de los egresos.

**7.- Dotar a las unidades académicas de la infraestructura necesaria para la enseñanza de la informática**

El plan de adquisiciones estará listo en abril/94. Las unidades académicas enviarán al rectorado sus requerimientos justificados en febrero/94.

Los aspectos técnicos los determinará la Comisión de Informática. Los recursos se los obtendrá, principalmente, del presupuesto de desarrollo de la ESPOL y de la cuenta de servicios de cada unidad.

### OBJETIVO III

#### ADECUAR LA OFERTA DE PROFESIONALES A LAS NECESIDADES DEL MEDIO

##### 8.- Aprobar la mención en Gestión Empresarial

En el primer trimestre de 1994 el Consejo Politécnico aprobará el proyecto que sobre la mención en Gestión Empresarial elaboró el Instituto de Ciencias Humanísticas y Económicas y que la Comisión Académica conoció en primera.

##### 9.- Crear la carrera de Economía

El Instituto de Ciencias Humanísticas y Económicas elaborará el proyecto de creación y funcionamiento en el primer trimestre de 1994, y lo pondrá a consideración del Consejo Politécnico en abril. La meta es que los aspirantes ingresen al prepolitécnico de verano, y que el primer semestre de la carrera se inicie en octubre/94. La carrera de Economía será autofinanciada.

##### 10.- Crear los consejos consultivos

Cada unidad académica de ingeniería y tecnología tendrá un consejo consultivo. Las atribuciones y funciones de este consejo constarán en el reglamento respectivo, cuyo proyecto el Rector lo presentará ante el Consejo Politécnico, en el segundo trimestre de 1994.

##### 11.- Apoyar el funcionamiento del Centro de Promoción y Empleo

El centro es un esfuerzo conjunto de la ESPOL y el Tecnológico Espíritu Santo, con el apoyo de la Cámara de Comercio de Guavaquil y de la Pequeña Industria.

En febrero/94 la oficina estará en pleno funcionamiento, y la ESPOL podrá tener información suficiente sobre: (i) banco de datos de empresas, (ii) demanda de profesionales politécnicos por parte de las empresas, (iii) nómina de profesionales politécnicos que consiguen trabajo a través del Centro, (iv) proyección de demanda de recursos humanos.

**OBJETIVO IV**

**FORTALECER EL SISTEMA DE ADMISION**

**12.- Aplicar y evaluar el nuevo sistema de admisión**

El sistema lo aprobó la Comisión Académica y entrará en vigencia en diciembre/93, en que se receptorá el examen de ingreso para el año lectivo 1994-1995.

El Vicerrector General con los organismos de apoyo respectivo será el responsable de esta actividad e informará los estados de avance una vez concluidos los prepolitécnicos de invierno y verano.

**OBJETIVO V**

**INNOVAR EL SISTEMA DE GRADUACION**

**13.- Mejorar el sistema de graduación**

Actualmente la Comisión Académica trabaja sobre este tema. El informe respectivo lo conocerá y aprobará el Consejo Politécnico en el primer trimestre de 1994.

**OBJETIVO VI**

**MEJORAR LAS CONDICIONES DE ESTUDIO DE LOS ALUMNOS**

**14.- Revisar el reglamento de ayudantías académicas**

El Vicerrector de Asuntos Estudiantiles con el apoyo del Vicerrector General presentará en febrero de 1994 el proyecto de reglamento, que incluirá el mejoramiento del valor de las ayudantías académicas y una ampliación de las posibilidades para acceder a las ayudantías de actividades varias.

**15.- Aplicar y evaluar el sistema de consejerías académicas**

El sistema lo aprobó la Comisión Académica. El responsable de su aplicación es el Vicerrector General.

**16.- Reestructurar los servicios bibliotecarios y modernizar los mecanismos de acceso a la información**

El Vicerrectorado de Asuntos Estudiantiles presentará el plan de fortalecimiento en marzo de 1994, el que incluirá, además de la propuesta de reestructuración y modernización: (i) los requerimientos de las unidades académicas con sus costos referenciales, (ii) las estrategias para obtener recursos del sector privado y (iii) mecanismos para lograr materiales bibliográficos de las empresas editoras y distribuidoras.

**OBJETIVO VII**

**AMPLIAR LA COBERTURA DE LOS PROGRAMAS DE POSTGRADO**

**17.- Organizar y ejecutar diplomados**

Los diplomados deben reunir las siguientes características: (i) satisfacer una necesidad de los usuarios, (ii) dinamizar la vida académica de la ESPOL, (iii) fortalecer las relaciones con universidades extranjeras y con el sector productivo; (iv) autogenerar rentas, (v) proveer recursos a las unidades académicas.

Diplomados que reunirían estas características serían (1) Informática, (2) Manejo de Recursos Costeros, (3) Acuicultura, (4) Matemáticas, (5) Física, (6) Química, (7) Gestión Empresarial, (8) Mercado de Valores, (9) Reingeniería, (10) Corrosión (11) Electromédica, (12) Seguridad Industrial, (13) Mantenimiento Industrial, (14) Computación Gerencial, (15) Control Estadístico de la Calidad, (16) Administración de Empresas Navieras, Transporte Marítimo, (17) Modernización de la Gestión Municipal, (18) Impacto Ambiental.

Las unidades académicas formularían y ejecutarían los Diplomados, previa aceptación del Vicerrector General y del Rector, sobre los aspectos académicos y operativos.

*Se auscultará la posibilidad de realizar uno o más diplomados en Quito, Cuenca y otras ciudades del Ecuador.*

**18.- Ejecutar cursos y seminarios de nivel de Post-Grado**

Las unidades académicas presentarán al Rector la planificación de los eventos al inicio de cada semestre. Esta actividad se la vinculará en lo posible para los aspectos organizativos con el trabajo de la oficina de Educación Continua.

**OBJETIVO VIII**

**REFORMULAR EL ROL DEL CICYT**

**19.- Reformular el CICYT**

El Vicerrector General presentará en el I trimestre de 1994 la propuesta de reforma.

**OBJETIVO IX**

**INCREMENTAR EL NUMERO DE CENTROS DE INVESTIGACION Y PRESTACION DE SERVICIOS CIENTIFICOS Y TECNOLOGICOS**

**20.- Apoyar el funcionamiento de los Centros**

La ESPOL posee 4 centros: CENAIM, CEMA, CRC y CECYP. Cada centro elaborará en enero/94 su respectivo plan operativo.

El CECYP y Educación Continua organizarán con el apoyo de la Universidad de los Andes 3 talleres de nivel gerencial sobre Calidad Total, Reingeniería y Trabajo en Equipo.

### **OBJETIVO X**

#### **CREAR PARQUES DE INVESTIGACION Y DESARROLLO TECNOLOGICO (INCUBADORAS TECNOLOGICAS)**

- 21.- **Realizar el estudio de factibilidad para la creación de incubadoras tecnológicas y parques industriales**

Se gestionará la contratación de un experto para realizar el estudio de factibilidad que incluirá las alternativas de autogestión de las incubadoras, el nivel de coparticipación de las empresas y los principales proyectos a ejecutarse.

### **OBJETIVO XI**

#### **ARTICULAR INVESTIGACION CON LA FORMACION DE RECURSOS HUMANOS Y EL MEJORAMIENTO DE LA PRODUCTIVIDAD**

- 22.- **Iniciar gestiones para el proyecto BID/ESPOL III**

Los objetivos principales del proyecto serían: (i) ejecutar proyectos de investigación; (ii) formar Magister y Ph.D.; (iii) capacitar docentes; (iv) fortalecer la eficiencia interna, (v) potenciar la extensión politécnica; y, (vi) crear parques tecnológicos.

La Unidad de Planificación presentará un perfil de la propuesta que incluirá la factibilidad y los costos de la formulación del proyecto.

- 23.- **Avanzar en las gestiones del Proyecto Agropecuario de Daule**

El Director del Instituto de Tecnologías con el apoyo del Coordinador del PROTAG y el Decano de la Facultad de Ingeniería Mecánica será el responsable de esta actividad e informará al Rector el estado de avance del proyecto.

**24.- Avanzar en las gestiones del Proyecto Forestal y Agrícola de Santa Elena**

El Director del Instituto de Tecnologías con el apoyo del Coordinador del PROTEM será el responsable de esta actividad e informará al Rector el estado de avance del proyecto.

**OBJETIVO XI!**

**INTEGRAR LA INVESTIGACION A LOS PROCESOS DE ENSEÑANZA  
EN PREGRADO Y POSTGRADO**

**25.- Integrar la investigación a los procesos de enseñanza en pregrado y postgrado**

El Director del CICYT en el primer trimestre/94 enviará al Vicerrector General el plan respectivo, para lo cual trabajará conjuntamente con los directivos de las unidades académicas.

**OBJETIVO XIII**

**FORTALECER LA EDUCACION CONTINUA**

**26.- Fortalecer los programas de educación continua**

Se dotará a la oficina de los recursos logísticos y humanos requeridos para que alcance la meta mínima de incrementar los ingresos en un 30% en valores corrientes. Especial énfasis se pondrá en: (i) los cursos que se organizarán con universidades extranjeras, (ii) los cursos de computación, (iii) los diplomados en computación gerencial y seguridad industrial, y (iv) darle continuidad de los cursos realizados en 1993.

**OBJETIVO XIV**

**AMPLIAR LA COBERTURA DE LA PRESTACION DE SERVICIOS,  
EN AREAS EN LAS CUALES LA ESPOL POSEE VENTAJAS  
COMPARATIVAS**

**27.- Elaborar un estudio de mercado para la prestación de servicios**

Se buscará identificar los requerimientos del sector productivo, ofertar los servicios que puede brindar la ESPOL y firmar los convenios respectivos con los usuarios.

Esta tarea la cumplirá el Centro de Prestación de Servicios con el apoyo directo de las unidades académicas.

La meta mínima es incrementar los ingresos por ejecución de proyectos en un 30% en valores corrientes.

**OBJETIVO XV**

**FAVORECER EL DESARROLLO SUSTENTABLE DE LA REGION**

**28.- Apoyar la ejecución del Proyecto PMRC/BID**

El CRC será el responsable de las actividades que la ESPOL asumirá dentro del Proyecto PMRC/BID.

El Director del CRC informará trimestralmente al Rector el estado de avance de esta actividad, y de su respectivo plan operativo.

**OBJETIVO XVI**

**INTENSIFICAR LA PRESENCIA DE LA ESPOL  
EN SUS RELACIONES CON LA COMUNIDAD**

- 29.- **Constituir la Fundación para el Desarrollo de la Ciencia y la Tecnología "FUNDECYT"**

Las sesiones de constitución y la aprobación del estatuto deben ocurrir en el primer trimestre de 1994. Ambas tareas son responsabilidad del Rector.

- 30.- **Constituir la Fundación CENAIM-ESPOL**

La Fundación asumirá la administración y el financiamiento del CENAIM, manteniendo la ESPOL el manejo académico-científico del Centro. La constitución y aprobación del estatuto deben ocurrir en el primer trimestre de 1994. Ambas tareas son responsabilidad del Director del CENAIM.

**OBJETIVO XVII**

**MODERNIZAR LA ADMINISTRACION**

- 31.- **Fortalecer la descentralización administrativa y ampliar la capacidad de gestión y las atribuciones de los directivos de las unidades académicas y administrativas.**

El Vicerrector Administrativo-Financiero presentará en el primer trimestre de 1994 el plan respectivo que incluirá los proyectos de los reglamentos.

**OBJETIVO XVIII**

**MEJORAR LA ADMINISTRACION DE LA INFORMACION**

- 32.- **Capacitar a los ejecutores del plan en calidad total**

El Centro de Calidad y Productividad CECYP, presentará al Rector en febrero/94 el plan respectivo. El CECYP será el responsable del monitoreo de esta actividad.

**33.- Implantar índices de calidad.**

El CECYP presentará al Rector en febrero/94 el plan respectivo que incluirá los índices sobre aspectos administrativo, financiero y académico.

**34.- Establecer el Sistema Unificado de Información Politécnica SUIP**

La Unidad de Planificación con el apoyo de CESERCOMP presentará al Rector el proyecto en el primer trimestre de 1994.

**35.- Formular el plan de desarrollo de la informática en la ESPOL**

La Comisión de Informática presentará al Rector el plan en el primer trimestre/94.

**OBJETIVO XIX**

**CAPACITAR A DIRECTIVOS, DOCENTES Y FUNCIONARIOS**

**36.- Formular y ejecutar el Programa de Alta Gerencia (PAG) para docentes y jefes de unidades**

El Director de la ESPAE presentará ante el Rector el plan respectivo hasta febrero/94. La meta mínima es capacitar 1 persona por unidad.

**OBJETIVO XX**

**FORMULAR Y EJECUTAR EL PLAN DE RECURSOS HUMANOS**

**37.- Realizar una Auditoría Administrativa**

El Vicerrector Administrativo-Financiero presentará al Rector hasta febrero/94 un perfil de la auditoría que incluirá la factibilidad de ejecutarla en 1994.

**38.- Plan de Capacitación para el personal administrativo**

El Director de Recursos Humanos presentará al Rector el plan en febrero/94. Los recursos se los obtendrá de los presupuestos de cuentas especiales y operación.

**OBJETIVO XXI**

**MANTENER POLITICAS APROPIADAS PARA ACTUALIZAR LOS  
SUELDOS DEL PERSONAL DE PLANTA DE LA ESPOL**

**39.- Revisar los sueldos en concordancia con el incremento de las rentas provenientes del Estado para el presupuesto de operación y de acuerdo con la Ley de Presupuesto.**

La revisión incluirá la creación de incentivos económicos para los profesores de tiempo completo que sean Ph.D. y que la ESPOL envió a formar.

**OBJETIVO XXII**

**IMPLANTAR UN SISTEMA DE SEGURIDAD INDUSTRIAL**

**40.- Implantar el sistema de seguridad industrial**

El Vicerrector Administrativo-Financiero presentará hasta febrero/94 el plan con sus respectivos costos. Los recursos provendrán de los presupuestos de desarrollo y operación.

**OBJETIVO XXIII**

**FORMULAR Y EJECUTAR EL PLAN DE MANTENIMIENTO Y  
OPERACION DE LOS CAMPUS DE LA ESPOL**

**41.- Formular y ejecutar el plan de operación y mantenimiento del Campus La Prosperina**

El Vicerrector Administrativo-Financiero presentará en marzo/94 el respectivo plan, con los costos referenciales. Los recursos provendrán de los presupuestos de desarrollo y operación.

**42.- Formular y ejecutar el plan de readecuación del Campus Las Peñas**

El Administrador del Campus presentará en marzo/94 el respectivo plan, con los costos referenciales. Los recursos provendrán de los fondos que generen las unidades que ocupan el Campus Las Peñas.

**OBJETIVO XXIV**

**FORTALECER LA CAPTACION DE INGRESOS  
PROVENIENTES DEL ESTADO**

**43.- Lograr que el CONUEP revise la distribución de rentas**

Se buscará un amplio respaldo entre los rectores de las universidades para presentar ante el CONUEP una propuesta alternativa de distribución de rentas.

**44.- Gestionar ante el gobierno la asignación presupuestaria a favor del Instituto de Tecnologías y de la carrera de Acuicultura**

Esta asignación debería constar en la proforma de 1995.

**OBJETIVO XXV**

**MEJORAR LA GENERACION DE RECURSOS PROPIOS**

**45.- Apoyar el avance de los Proyectos ESPOL 2-A y Mina Escuela Internacional**

Los Coordinadores presentarán los planes respectivos en enero/94.

**46.- Incrementar la generación de rentas**

La estrategia estaría orientada hacia: (i) el nuevo sistema de cobro de registros, (ii) no gratuidad en las asignaturas repetidas, (iii) utilización del campus Las Peñas.

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**OBJETIVO XXVI**

**RACIONALIZAR Y OPTIMIZAR LOS EGRESOS**

Este objetivo está ligado a las auditorías académicas y administrativas previstas en las actividades 5 y 37 de este plan.

**OBJETIVO XXVII**

**FORTALECER EL CONTROL Y MANEJO FINANCIERO**

**47.- Fortalecer el control y manejo financiero**

El Director Financiero presentará en enero/94 el plan respectivo que incluirá (i) el mejoramiento del sistema de información en tiempo real (entrega de información financiera al día), (ii) la capacitación técnica del personal a su cargo, (iii) la capacitación que requieren los directivos de la ESPOL, y (iv) los lineamientos de la auditoría operativa.

Esta actividad se relaciona con las actividades 31 y 37.

**OBJETIVO XXVIII**

**FORMULAR Y EJECUTAR EL PLAN DE DESARROLLO FISICO  
DEL CAMPUS LA PROSPERINA, Y MEJORAR LA  
INFRAESTRUCTURA EN LOS CAMPUS DE DAULE Y SANTA ELENA**

**48.- Iniciar el proceso para la construcción del Centro Estudiantil**

El proceso de licitación culminará en el segundo trimestre de 1994 y la obra se ejecutará en 10 meses (primer semestre de 1995).

**49.- Concluir el edificio de Ingeniería en Computación y el complejo deportivo**

Las obras concluirán en 1994.

**50.- Construir el monumento a la ESPOL**

La unidad de Planificación elaborará el proyecto arquitectónico y el presupuesto de ejecución. Los recursos se obtendrán del presupuesto de desarrollo.

**51 Iniciar la construcción de la presa para el riego del Campus La Prosperina**

El estudio, planos y presupuesto estarán listos a fines de enero/94 y la construcción se iniciará en mayo, dependiendo de la existencia de recursos y de las características de la estación lluviosa. La responsabilidad de esta actividad corresponderá al Vicerrector Administrativo-Financiero.

**52.- Proveer los recursos necesarios para rehabilitar las viviendas de Daule y mejorar la infraestructura de Santa Elena**

La Unidad de Planificación elaborará los planos y presupuestos respectivos.

**NOTA:** *Las actividades 50, 51 y 52 están supeditadas a que el Ministerio de Finanzas asigne los recursos necesarios al presupuesto de desarrollo.*

**OBJETIVO XXIX**

**FORMULAR Y EJECUTAR EL PLAN DE MANEJO DEL BOSQUE  
PROTECTOR DEL CAMPUS LA PROSPERINA**

**53.- Formular el plan de manejo del bosque protector**

En el primer trimestre de 1994 se deberá: (i) obtener la declaratoria de bosque protector, y (ii) contratar la formulación del plan de manejo.

En el segundo trimestre de 1994 se iniciarían las gestiones para acceder a los fondos del Programa de Reforestación del INEFAN.

La Unidad de Planificación será la responsable de esta actividad.

**OBJETIVO XXX**

**COMPLETAR LOS LABORATORIOS Y TALLERES DE  
LAS UNIDADES ACADEMICAS**

**54.- Equipar laboratorios y talleres de las unidades académicas**

Hasta febrero/94 las unidades académicas presentarán ante el Vicerrector Administrativo-Financiero los requerimientos respectivos. La adquisición de los equipos será concordante con los recursos que haya en el presupuesto de desarrollo y con los que generen las unidades académicas.